UK MET OFFICE
GLOBAL DATA MONITORING REPORT

October 2004

Data Assimilation
Meteorological Office
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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Exeter. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Exeter in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background) field, although to provide background values valid at the observation time for non-main hour data, time-interpolation of the T+3, T+6 and T+9 forecasts is used; and for sea surface temperature the background field is the analysis from the previous day. Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Exeter and assimilated into model runs. All data are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Exeter and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Exeter and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

Figures 55-69 show sounding statistics from the polar orbitting satellite NOAA-17. Figure 55 shows the mean daily number of ATOVS soundings, and figures 56-69 show mean and standard deviation observation-background differences for brightness temperature for selected channels.

Figure		Weighting function peak (hPa)
56	Mean	Surface (HIRS8)
57	SD	Surface (HIRS8)
58	Mean	700 (HIRS15)
59	SD	700 (HIRS15)
60	Mean	500-700 (HIRS11)
61	SD	500-700 (HIRS11)
62	Mean	400 (HIRS4)
63	SD	400 (HIRS4)
64	Mean	700 (AMSUA5)
65	SD	700 (AMSUA5)
66	Mean	300 (AMSUA7)
67	SD	300 (AMSUA7)
68	Mean	100 (AMSUA9)
69	RMS	100 (AMSUA9)

N.B. All satellite sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Exeter during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Exeter in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Exeter from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.
25. December 2002. Included statistics for ATOVS sounding data from NOAA-17.
26. December 2002. Meteosat-7 and Meteosat-5 SATOB winds replaced by higher resolution BUFR-coded winds.
27. November 2003. Included temperature and relative humidity statistics for ships, fixed buoys and platforms in Table 1.
28. November 2003. NOAA 17 statistics no longer available due to malfunction of the AMSU-A instrument.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).
:Air temperature (Degrees C).
:Relative Humidity (%).
:Sea surface temperature (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:PGE :Percentage of observations with gross errors.

:%REJ :Percentage of observations flagged excluding those with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the wind observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)
:15 degrees (air temperature)
:10 degrees (sea surface temperature)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 $m\ s^{-1}$	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
	≥ 4 degrees	(air temperature)
	≥ 15%	(relative humidity)
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
	≥ 6 degrees	(air temperature)
	≥ 25%	(relative humidity)
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

```
IDENTIFIER   ELEM     NOBS   PGE  %REJ      SD     BIAS     RMS

AUCT          P         37     0    57     1.1      6.4     6.5
A8AM3         P         29     0    79     0.9      4.7     4.8
A8FA5         P         28     0     4     1.3      5.3     5.4
C6FV3         P         59     0     3     1.1      9.9    10.0
ELWX5         P         50     0    68     6.7     -6.8     9.5

KS005         P         68     0     0     0.5     -4.5     4.5
OZTS2         P         37     0     0     0.8      4.1     4.2
UACU          P         32    16    66     4.4     -6.6     8.0
UCKH          P         64     0    28     1.5     -4.1     4.4
VOTV          P         21     5    86     2.5     -6.3     6.8

VVMA          P         35     3    94     1.5      7.4     7.5
V2FY          P         65     0    49     1.6      4.2     4.5
WADZ          P         58     3   100     3.0      4.0     5.0
WSRH          P         40     0    32     2.5     -4.4     5.1
ZCBH8         P         71     1    41     1.4     -4.6     4.8

ZDFK7         P         50     0     0     1.2      4.6     4.8
62166         P         57     2   100     4.2      4.9     6.5

IDENTIFIER   ELEM     NOBS   PGE  %REJ      SD     BIAS     RMS

DGZO         SPEED      56     0   100     3.3      5.4     6.3
ELTY4        SPEED      27     4   100     5.3      7.4     9.1
ELVH3        SPEED      35     0    40     4.2      6.6     7.8
ELVP2        SPEED      46     0    20     5.6      5.7     7.9
ELWX5        SPEED      45     2    67     4.7      5.8     7.5

JGAC         SPEED      88     2    47     6.5     10.2    12.1
LACF5        SPEED      64     0    13     3.7      5.3     6.4
LAKQ5        SPEED      34     9    44     6.9     10.1    12.3
LAVY4        SPEED      26     0    19     2.5      6.1     6.6
MYLZ6        SPEED      35     0   100     6.7      5.0     8.4

UCUE         SPEED      30     0     7     2.6      5.8     6.3
UCUP         SPEED      26     0     8     1.8      5.1     5.4
VJIK         SPEED      50    10    74     5.3      7.2     8.9
44138        SPEED     715     0   100     3.1     -8.7     9.2
9MBR8        SPEED      21    29    67     5.1     10.6    11.8

9VBA         SPEED      21     0    52     5.3      8.5    10.0

IDENTIFIER   ELEM     NOBS   PGE  %REJ      SD     BIAS     RMS

AUCT         DIRN.      23     4     0    54.2    -30.5    62.2
CGDX         DIRN.      22     0     0    43.1     43.5    61.3
ELWX5        DIRN.      42     2     0    85.5     66.7   108.5
ELZB3        DIRN.      22     0     0    81.3    -60.7   101.4
LAIP5        DIRN.      22     0     0    39.4    -35.3    52.9

VJIK         DIRN.      29    17     0   106.0    -43.0   114.4
63055        DIRN.     298     0     0    25.2     34.9    43.0
9HQK6        DIRN.      40     0     0    51.5    -48.2    70.5

IDENTIFIER   ELEM     NOBS   PGE  %REJ      SD     BIAS     RMS

ELWX5        T          50    54   100     1.5      0.2     1.5
SP33         T         115     3   100     3.4     -6.4     7.2
WCW9126      T          66     3   100     3.0      7.5     8.1
WDB6493      T          71     1   100     3.7      5.3     6.5
46081        T         722     1   100     2.3      7.1     7.5


IDENTIFIER   ELEM     NOBS   PGE  %REJ      SD     BIAS     RMS

A8DO9        RH         53     0   100     9.5     15.8    18.5
DACF         RH        300     0   100    18.8    -33.4    38.4
DBKV         RH        634     0   100    15.4    -21.9    26.8
DFPC         RH         71     0   100     9.3     25.4    27.1
FNAT         RH         66     0   100     5.7     24.0    24.7

VNZJ         RH         31     0   100     7.6     20.8    22.1
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3EBX6          RH          25      0   100       7.4    -16.6     18.2

IDENTIFIER     ELEM      NOBS    PGE  %REJ        SD     BIAS      RMS

A8AF5          SST         25     28   100       0.9     -8.5      8.6
A8AH7          SST         30      0    23       1.1      3.2      3.3
A8BZ6          SST         70      0   100       1.3     -3.6      3.8
A8CF2          SST         24      4   100       1.9     -4.4      4.8
A8CG3          SST         28      4   100       2.8     -3.4      4.4

CG2992         SST         21      0   671       1.5      4.2      4.5
DAJL           SST         71      0    59       0.9      3.3      3.4
DGCP           SST         20      0    45       3.1     -3.6      4.8
DGGV           SST         33      0   100       0.8      3.7      3.8
DHDH           SST         20      0    25       0.8     -3.2      3.3

GQUK           SST         37      0    62       3.4     -3.9      5.2
KHRC           SST         27      0   100       0.8     -3.3      3.4
KHRP           SST         24      0   100       0.6      3.2      3.2
TSMS           SST         42      0    45       0.9     -3.9      4.0
UBAM           SST         40      0   100       0.3      3.9      3.9

UCOR           SST         29      3   103       1.5     -3.2      3.5
UFJC           SST         35      3    46       1.9     -3.1      3.7
UIFV           SST         20      5    70       2.6     -3.8      4.6
VRVT2          SST         51      0   100       0.8      4.0      4.1
VVKV           SST         36      3   100       1.5      5.6      5.8

V2OD6          SST         23      0   100       1.0     -3.0      3.2
V2SP           SST         29      0   100       1.1     -3.3      3.5
WGJF           SST         34      0    59       2.0     -3.3      3.8
WQVY           SST         21     67    76       1.9     -1.9      2.7
WRZU           SST         25      0    32       1.1     -3.7      3.9

WSRH           SST         37      0    51       0.9     -3.5      3.6
ZCBV7          SST         74      0    34       1.3      3.2      3.5
3EMQ9          SST         53      0   100       1.1     -4.3      4.4
3FKM8          SST         33      0   100       1.5     -3.9      4.2
3FPA6          SST         45      0   100       1.2      7.0      7.2

3FRR5          SST         59      0    47       1.6      3.5      3.8
44011          SST        660      0   100       1.1     -3.2      3.4
44014          SST        717      0    48       0.8     -3.0      3.1
44141          SST        718      0    67       1.2      3.5      3.7
9HQK6          SST         61      0    80       2.6     -4.6      5.3
```
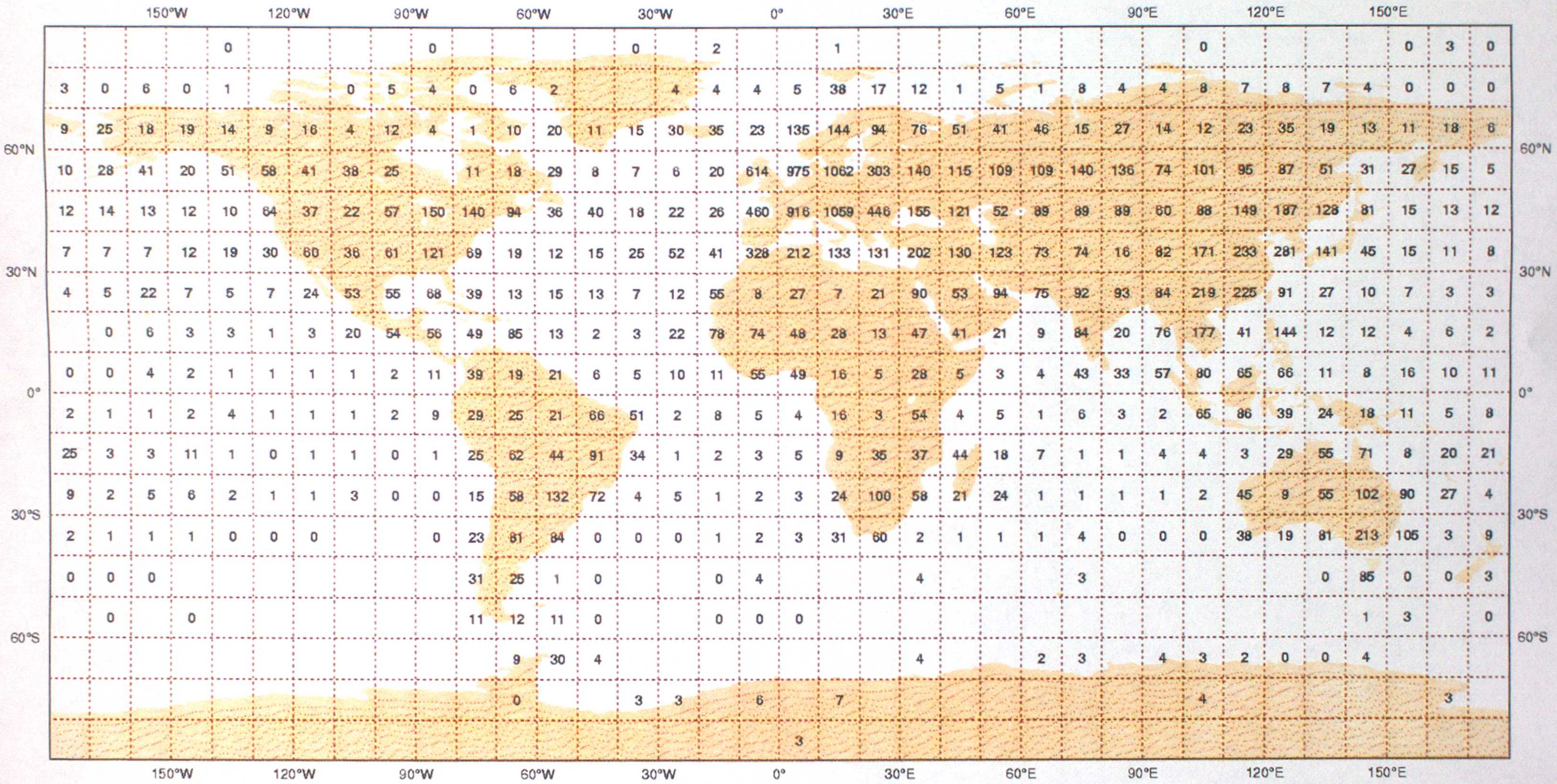

Figure 1. SHIP/SYNOP mean daily count. OCTOBER 2004
All hours
Global average number of observations in 24 hours = 20602



				0					0					0		2			1									0					0	3	0
3	0	6	0	1			0	5	4	0	6	2			4	4	4	5	38	17	12	1	5	1	8	4	4	8	7	8	7	4	0	0	0
9	25	18	19	14	9	16	4	12	4	1	10	20	11	15	30	35	23	135	144	94	76	51	41	46	15	27	14	12	23	35	19	13	11	18	6
10	28	41	20	51	58	41	38	25		11	18	29	8	7	6	20	614	975	1062	303	140	115	109	109	140	136	74	101	95	87	51	31	27	15	5
12	14	13	12	10	64	37	22	57	150	140	94	36	40	18	22	26	460	916	1059	446	155	121	52	89	89	89	60	88	149	187	128	81	15	13	12
7	7	7	12	19	30	60	36	61	121	69	19	12	15	25	52	41	328	212	133	131	202	130	123	73	74	16	82	171	233	281	141	45	15	11	8
4	5	22	7	5	7	24	53	55	68	39	13	15	13	7	12	55	8	27	7	21	90	53	94	75	92	93	84	219	225	91	27	10	7	3	3
	0	6	3	3	1	3	20	54	56	49	85	13	2	3	22	78	74	48	28	13	47	41	21	9	84	20	76	177	41	144	12	12	4	6	2
0	0	4	2	1	1	1	1	2	11	39	19	21	6	5	10	11	55	49	16	5	28	5	3	4	43	33	57	80	65	66	11	8	16	10	11
2	1	1	2	4	1	1	1	2	9	29	25	21	66	51	2	8	5	4	16	3	54	4	5	1	6	3	2	65	86	39	24	18	11	5	8
25	3	3	11	1	0	1	1	0	1	25	62	44	91	34	1	2	3	5	9	35	37	44	18	7	1	1	4	4	3	29	55	71	8	20	21
9	2	5	6	2	1	1	3	0	0	15	58	132	72	4	5	1	2	3	24	100	58	21	24	1	1	1	1	2	45	9	55	102	90	27	4
2	1	1	1	0	0	0			0	23	81	84	0	0	0	1	2	3	31	60	2	1	1	1	4	0	0	0	38	19	81	213	105	3	9
0	0	0								31	25	1	0			0	4				4				3						0	85	0	0	3
	0		0							11	12	11	0			0	0	0														1	3		0
											9	30	4								4			2	3		4	3	2	0	0	4			
											0			3	3		6		7									4						3	
																		3																	

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times : All hours

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).
:Sea surface temperature (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:PGE :Percentage of observations with gross errors.

:%REJ : Percentage of observations flagged excluding those with gross errors

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the wind observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)
:10 degrees (sea surface temperature)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).
≥ 3 degrees (sea surface temperature).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).
≥ 5 degrees (sea surface temperature).
3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

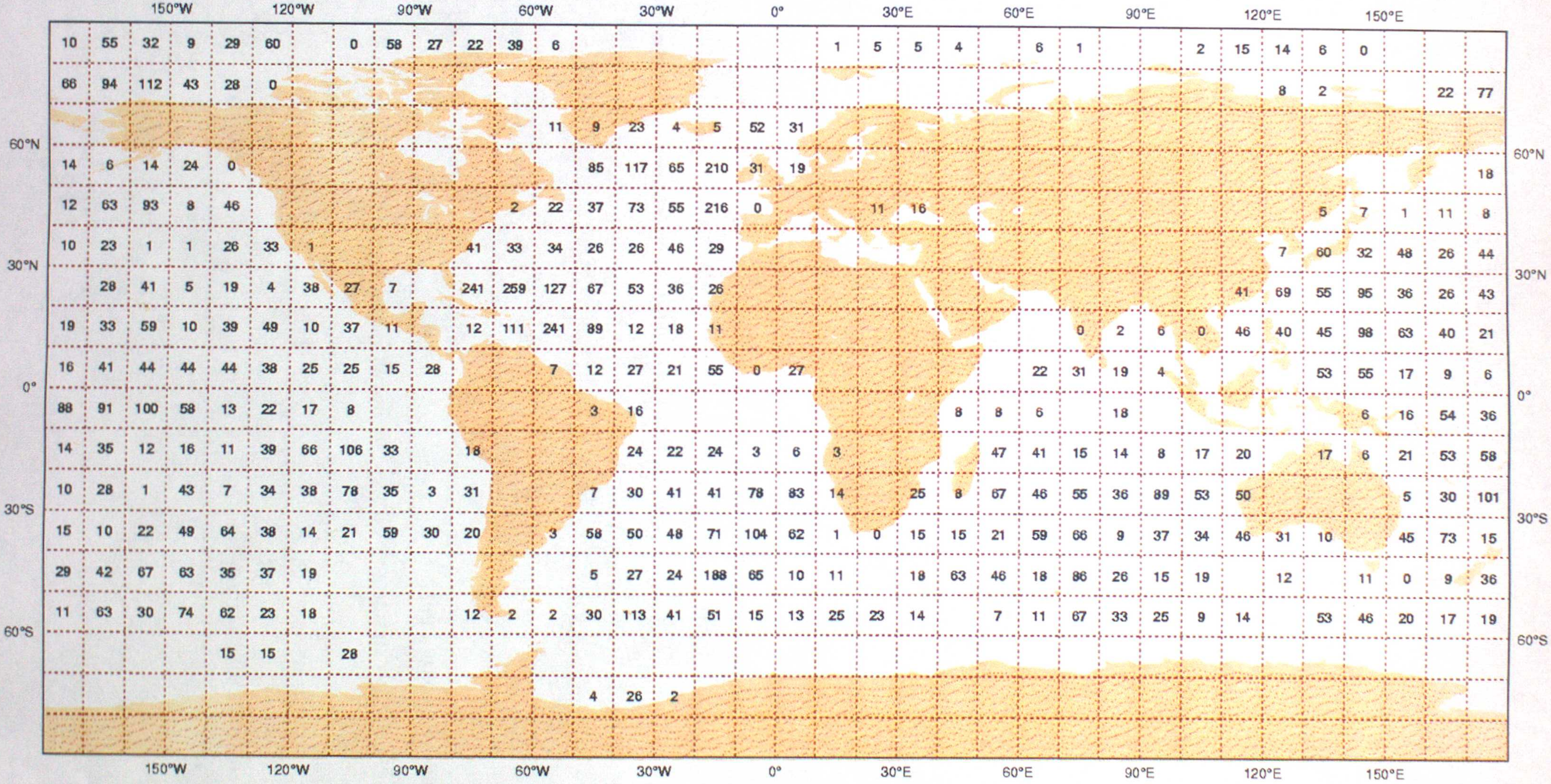
IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
16565	-27.8	103.4	P	607	2	74	6.1	-0.1	6.1
16569	-31.5	94.6	P	69	41	41	0.4	-0.4	0.5
17675	-44.8	-9.4	P	113	100	100			
25572	88.7	-79.8	P	240	66	100	3.4	11.9	12.4
33657	-42.7	68.0	P	86	45	62	1.5	-2.8	3.2
41919	23.2	-71.7	P	29	55	100	0.5	14.0	14.1
48582	85.8	-68.0	P	237	40	92	4.6	-8.0	9.3
61552	41.6	28.1	P	279	0	100	0.6	-5.7	5.7
61553	42.0	35.1	P	182	38	58	5.4	2.2	5.9
61554	41.6	32.3	P	216	64	98	7.5	-4.8	8.9
61556	41.2	29.1	P	48	10	90	6.8	-2.0	7.1

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41590	26.6	-58.5	SPEED	99	0	100	4.9	6.8	8.4
41919	23.2	-71.7	SPEED	27	0	100	1.1	13.1	13.1
47590	15.3	139.8	SPEED	67	1	100	4.4	8.6	9.7
52694	14.1	142.2	SPEED	59	37	100	8.0	6.2	10.1

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13602	19.8	-45.6	DIRN.	123	0	0	21.3	42.1	47.2
41921	23.1	-70.9	DIRN.	103	10	0	12.9	36.9	39.1
52523	36.4	158.8	DIRN.	216	4	0	88.1	*****	136.4
52697	21.7	143.9	DIRN.	20	0	0	12.5	-37.6	39.7

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
21902	38.1	132.6	SST	301	0	66	1.5	-3.0	3.4
22901	37.6	130.0	SST	309	0	68	1.4	-3.0	3.3
22902	37.6	130.6	SST	269	0	91	0.8	-3.7	3.7
32693	17.6	-158.4	SST	785	0	100	0.1	3.0	3.0
33677	-54.3	-31.8	SST	400	32	32	0.5	-0.4	0.7
41572	19.6	-69.9	SST	31	0	90	5.0	-1.2	5.2
41617	23.4	-69.5	SST	176	98	99	2.8	-4.2	5.0
41618	22.9	-65.6	SST	279	52	96	0.2	-2.5	2.6
41619	23.3	-71.1	SST	270	51	73	0.3	-2.4	2.4
41620	23.2	-67.1	SST	266	58	87	0.8	-2.3	2.5
41622	23.0	-71.0	SST	269	61	83	0.2	-2.5	2.5
41623	31.6	-75.5	SST	155	39	94	2.0	-5.7	6.1
41668	25.8	-67.8	SST	159	89	100	1.0	-9.4	9.4
41669	22.9	-70.6	SST	270	60	83	0.3	-2.6	2.6
41671	31.4	-74.6	SST	201	59	79	1.9	1.0	2.2
41852	25.1	-71.4	SST	42	95	95	0.5	-1.1	1.3
41853	23.1	-71.4	SST	111	99	100	0.0	-1.9	1.9
41854	21.9	-67.7	SST	269	47	96	0.2	-2.9	2.9
46600	30.1	-127.7	SST	267	0	100	0.4	-3.5	3.6
46972	16.7	160.4	SST	198	0	100	0.2	5.2	5.2
51518	-1.1	-165.5	SST	80	90	99	2.8	-6.7	7.3
61554	41.6	32.3	SST	307	15	91	5.6	-2.1	5.9

Figure 2. DRIFTER mean daily count. OCTOBER 2004
All hours
Global average number of observations in 24 hours = 11692



10	55	32	9	29	60		0	58	27	22	39	6							1	5	5	4		6	1			2	15	14	6	0			
66	94	112	43	28	0																									8	2			22	77
												11	9	23	4	5	52	31																	
14	6	14	24	0									85	117	65	210	31	19																	18
12	63	93	8	46							2	22	37	73	55	216	0			11	16										5	7	1	11	8
10	23	1	1	26	33	1				41	33	34	26	26	46	29														7	60	32	48	26	44
	28	41	5	19	4	38	27	7		241	259	127	67	53	36	26													41	69	55	95	36	26	43
19	33	59	10	39	49	10	37	11		12	111	241	89	12	18	11									0	2	6	0	46	40	45	98	63	40	21
16	41	44	44	44	38	25	25	15	28			7	12	27	21	55	0	27						22	31	19	4				53	55	17	9	6
88	91	100	58	13	22	17	8						3	16								8	8	6		18						6	16	54	36
14	35	12	16	11	39	66	106	33		18				24	22	24	3	6	3				47	41	15	14	8	17	20		17	6	21	53	58
10	28	1	43	7	34	38	78	35	3	31			7	30	41	41	78	83	14		25	8	67	46	55	36	89	53	50				5	30	101
15	10	22	49	64	38	14	21	59	30	20		3	58	50	48	71	104	62	1	0	15	15	21	59	66	9	37	34	46	31	10		45	73	15
29	42	67	63	35	37	19							5	27	24	188	65	10	11		18	63	46	18	86	26	15	19		12		11	0	9	36
11	63	30	74	62	23	18				12	2	2	30	113	41	51	15	13	25	23	14		7	11	67	33	25	9	14		53	46	20	17	19
				15	15		28																												
													4	26	2																				

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

SUSPECT SYNOPS (PRESSURE) BY WMO REGION OCT 2004

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60320	35.9N	5.4W	2	MS	57	7	12	2	1.7	-9.4	9.6
61492	16.1N	13.5W	18	MS	68	0	0	3	1.5	4.4	4.6
62056	32.8N	21.9E	625	S8	63	0	0	0	0.8	-4.8	4.9
63801	4.9S	29.6E	882	S8	73	3	4	1	0.7	7.8	7.8
63881	8.0S	31.6E	1923	S	37	4	11	0	0.9	13.5	13.5
65355	9.8N	1.1E	342	MS	116	1	1	1	1.1	-13.5	13.5
66285	11.8S	19.9E	1357	8	22	18	82	0	0.3	14.5	14.5
67229	14.7S	34.3E	1270	S8	22	18	82	0	0.9	13.5	13.5
68014	19.6S	18.1E	1411	S8	85	1	1	0	0.6	-6.8	6.8
68030	18.5S	25.6E	1071	S8	91	0	0	0	4.0	7.4	8.4
68038	20.5S	26.0E	903	8	83	0	0	1	1.4	4.5	4.7
68102	19.9S	16.4E	1343	S8	46	0	0	0	0.7	6.0	6.0
68300	26.6S	15.1E	16	MS	69	29	42	0	0.9	-13.8	13.8
68312	26.5S	18.1E	1067	S8	81	0	0	1	0.9	4.7	4.8
68396	26.5S	31.3E	641	S8	56	0	0	2	1.4	4.8	5.0
68575	30.0S	30.0E	1175	S8	119	119	100	0			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	121	0	0	0	0.8	12.0	12.0
36982	41.9N	78.2E	3635	S7	118	1	1	0	1.2	4.4	4.6
38565	40.6N	65.7E	485	MS	121	121	100	0			
38846	38.4N	70.0E	1437	S8	35	0	0	0	1.0	-5.5	5.6
40435	24.5N	44.4E	991	MS	58	1	2	0	0.8	8.1	8.1
40700	39.6N	47.9E	45	MS	113	1	1	2	1.2	-5.2	5.3
40713	37.4N	46.3E	1475	MS	115	37	32	2	1.8	13.6	13.7
40741	36.5N	61.2E	235	MS	113	0	0	1	0.9	-4.8	4.9
40743	36.2N	57.7E	978	MS	118	0	0	0	0.8	4.7	4.8
40757	35.6N	53.4E	1171	MS	112	0	0	0	1.0	4.5	4.6
40780	33.6N	46.4E	1362	MS	116	1	1	3	1.2	5.7	5.8
41254	23.1N	57.6E	1755	S8	121	121	100	0			
44416	28.6N	81.6E	720	MS	72	3	4	0	1.1	4.9	5.0
47022	40.8N	128.2E	1224	S	116	1	1	0	1.0	4.6	4.7
47678	33.1N	139.8E	79	MS	121	0	0	0	0.9	-8.7	8.7
48924	21.1N	101.5E	644	S	42	0	0	0	0.9	11.0	11.0
48925	20.7N	102.0E	550	S	39	0	0	0	0.7	-10.2	10.2
48938	19.2N	101.7E	326	MS	42	23	55	0	0.3	14.5	14.5
50727	47.2N	119.9E	1028	MS	121	0	0	0	0.5	4.5	4.5
50978	45.3N	130.9E	234	MS	121	0	0	0	0.8	-5.5	5.6
52866	36.6N	101.8E	2262	S	121	0	0	0	1.0	-4.1	4.2
53646	38.3N	109.8E	1058	MS	121	0	0	0	0.6	-12.0	12.0
56462	29.0N	101.5E	2994	S	121	0	0	0	1.2	8.8	8.9
56768	25.0N	101.5E	1773	S	121	0	0	0	0.6	-5.5	5.5
57816	26.6N	106.7E	1074	MS	121	113	93	0	0.2	-14.7	14.7
59663	21.8N	112.0E	22	MS	121	0	0	0	0.6	-7.6	7.6

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	122	MS	22	0	0	50	1.2	-4.8	4.9
80342	1.4N	77.3W	1802	S	33	4	12	100	0.4	-13.7	13.7
80434	9.2N	66.0W	125	MS	44	3	7	0	2.3	-4.7	5.2
82181	2.0S	54.1W	146	MS	81	0	0	0	1.1	6.7	6.8
82704	7.6S	72.7W	170	MS	68	0	0	0	1.1	-4.5	4.6
82765	7.3S	47.5W	193	MS	83	0	0	0	0.8	4.5	4.6
83235	12.4S	46.4W	604	MS	89	0	0	0	1.0	6.9	7.0

83270	13.5S	52.5W	430	MS	82	0	0	10	1.3	4.0	4.2
83319	14.7S	52.4W	315	MS	81	0	0	0	1.3	4.2	4.4
83332	14.1S	46.4W	826	MS	88	10	11	0	0.7	13.7	13.7
83470	17.9S	50.9W	727	MS	86	0	0	0	0.9	-5.1	5.2
83531	18.6S	46.5W	940	MS	85	0	0	2	0.9	-6.0	6.1
83836	25.5S	50.6W	837	MS	87	0	0	0	0.8	-4.5	4.6
84401	5.2S	80.6W	49	MS	102	0	0	0	0.7	4.4	4.5
84425	5.9S	76.1W	179	MS	22	0	0	0	1.0	4.4	4.5
84452	6.8S	79.8W	29	MS	99	0	0	0	1.2	4.6	4.8
84455	6.5S	76.4W	281	MS	73	0	0	0	1.3	7.4	7.5
84472	7.1S	78.5W	2620	S	49	1	2	0	0.6	-5.1	5.1
84474	7.2S	76.7W	350	S	23	0	0	0	1.1	9.1	9.2
84501	8.1S	79.0W	26	MS	74	0	0	0	0.6	4.6	4.6
84686	13.6S	72.0W	3248	S	101	0	0	0	0.7	-4.3	4.4
84688	13.7S	73.4W	3444	S	40	1	3	0	0.7	-12.0	12.0
84782	18.1S	70.3W	468	MS	80	0	0	0	1.1	5.4	5.5
85140	14.3S	67.4W	140	MS	59	0	0	5	2.0	7.2	7.5
85210	16.3S	58.4W	124	MS	59	0	0	0	1.1	4.4	4.5
85264	18.5S	64.1W	1998	S	58	2	3	100	1.7	-12.1	12.2
85312	19.8S	63.9W	992	S	43	0	0	2	1.6	-9.8	9.9
85406	18.3S	70.3W	55	M	117	0	0	0	0.9	4.5	4.6
85432	22.5S	68.9W	2320	S8	85	0	0	0	0.7	4.4	4.5

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71060	52.5N	116.1W	230	MS	121	121	100	0			
71181	47.1N	55.3W	29	MS	121	0	0	0	0.6	-5.7	5.7
71581	54.5N	128.6W	215	M	70	24	34	63	5.7	-5.0	7.6
72327	36.1N	86.7W	182	MS	121	0	0	0	0.6	4.2	4.2
76055	31.0N	114.9W	440	MS	60	60	100	0			
76225	28.6N	106.1W	1435	MS	83	1	1	0	0.8	-4.5	4.6
76543	22.0N	98.8W	104	MS	64	0	0	2	1.4	9.0	9.1
76658	19.2N	103.7W	494	MS	41	0	0	0	0.8	5.7	5.8
76683	19.3N	98.3W	2248	MS	85	0	0	0	0.6	4.0	4.0
76687	19.5N	96.9W	1389	MS	87	0	0	0	0.6	4.1	4.1
76762	17.5N	99.5W	1265	MS	90	1	1	0	0.7	5.8	5.8
76843	16.8N	93.1W	528	MS	94	1	1	1	1.0	-5.3	5.4
78588	17.2N	87.5W	-272	M	116	116	100	0			
78655	14.0N	89.6W	725	MS	57	1	2	2	0.5	11.3	11.3

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94130	14.8S	131.9E	120	MS	121	0	0	0	1.0	4.7	4.8
97378	10.7S	123.1E	1	MS	47	45	96	0	0.6	-14.3	14.3
98851	6.1N	125.2E	14	MS	113	2	2	33	5.9	-4.3	7.3

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01360	61.9N	7.9E	711	MS	84	0	0	0	0.9	6.7	6.8
06239	54.9N	44.7E	49	MS	362	164	45	0	7.4	-3.0	8.0
06685	47.0N	9.1E	515	MS	121	0	0	2	0.9	6.2	6.3
08912	42.9N	0.8W	1434	MS	106	106	100	0			
08922	42.8N	0.2W	1660	MS	102	102	100	0			
10850	48.8N	10.7E	457	MS	362	0	0	0	0.5	-5.4	5.4
11116	47.5N	10.8E	870	MS	57	1	2	0	0.6	4.4	4.4
13269	44.3N	19.9E	176	MS	119	0	0	1	0.7	7.8	7.8
14554	44.9N	18.4E	136	S	60	1	2	0	0.7	-13.1	13.1
16344	39.3N	16.4E	1710	S8	97	0	0	0	1.1	4.5	4.6
16450	37.6N	14.3E	940	S8	106	0	0	8	1.0	-4.1	4.2
16538	40.1N	9.3E	1022	S	35	0	0	9	1.7	9.6	9.7

17521	35.2N	33.5E	285	MS	85	85	100	0			

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	106	0	0	0	2.2	-6.2	6.6
89257	75.4S	59.9W	40	S	649	0	0	0	1.7	-7.3	7.5
89262	67.0S	60.6W	17	S	265	0	0	0	1.8	-4.3	4.7
89263	66.0S	66.1W	20	M	260	14	5	0	1.4	11.9	12.0
89266	72.2S	60.2W	91	S	275	269	98	0	3.3	-2.4	4.1
89272	75.0S	70.8W	1395	S	278	278	100	0			
89610	65.9S	113.1E	90	S	261	0	0	0	1.2	-7.9	8.0
89614	66.6S	111.2E	500	S	267	267	100	0			
89744	74.0S	43.1E	3353	S	273	0	0	0	0.6	7.5	7.5
89811	66.7S	112.8E	1366	S	273	0	0	0	1.4	-5.1	5.3

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	3912	0	41	1.5	0.3	3845	0	40	0	6.1	0.5
AAL	5699	0	35	1.3	0.1	5341	0	37	0	6.3	0.1
AAR	1210	0	2	1.5	-0.3	1204	0	4	0	7.8	-0.3
ACA	2286	0	10	1.6	0.2	1777	0	11	0	6.9	0.1
ACI	124	0	10	1.6	0.3	124	0	9	0	4.7	0.5
AEA	1724	0	3	1.5	0.1	1431	1	8	0	10.9	-1.4
AEL	315	5	21	3.3	2.0	305	0	13	0	11.8	-0.4
AFL	782	0	3	1.7	0.4	419	0	3	0	7.7	0.6
AFR	1162	0	8	1.4	0.4	1140	0	11	0	9.7	-0.6
AJM	333	0	2	1.3	-0.1	287	0	8	0	11.2	-1.5
AJX	282	0	3	1.6	0.5	277	0	4	0	7.3	0.8
AMD	160	0	63	1.6	1.0	160	0	63	0	5.5	0.1
AMT	1900	0	44	1.4	0.2	1879	0	43	0	5.7	0.2
AMX	527	2	7	1.9	0.3	455	1	9	0	11.0	0.0
ANA	26	0	0	1.1	0.0	26	0	0	0	6.0	-0.9
ANZ	5468	0	24	1.3	0.2	5437	0	24	0	6.0	0.2
ARG	28	4	29	1.4	-0.7	22	0	32	0	6.2	1.0
ATN	104	1	100	3.0	-0.5	94	0	31	0	12.5	3.9
AUA	34	3	71	6.4	5.6	33	0	3	0	8.2	-1.1
AVA	311	0	4	1.6	0.6	309	1	11	0	14.0	-1.9
AVN	211	1	43	0.9	-0.1	213	0	43	0	6.3	-0.5
AXF	43	5	37	1.7	-0.5	43	0	30	0	8.0	1.0
AZA	562	3	11	2.4	0.9	497	0	9	0	11.0	-0.7
BAF	25	0	0	1.3	-0.4	23	0	4	0	10.9	-1.8
BAL	422	0	7	1.3	0.0	419	1	10	0	9.5	-0.9
BAW	667	1	21	1.8	-0.6	442	0	22	0	7.0	0.7
BBR	198	0	2	1.5	0.7	199	0	100	0	17.0	2.6
BPA	262	11	53	5.4	3.4	264	0	11	0	10.4	0.1
BWA	483	0	3	1.5	0.0	427	0	8	0	11.1	-1.4
CAL	22	0	59	1.3	-0.2	29	0	62	0	5.5	0.2
CCA	359	2	19	2.8	0.3	376	1	57	0	13.0	-0.6
CES	496	1	8	1.6	0.0	491	1	10	0	9.7	0.5
CFC	43	0	5	1.4	-0.1	41	0	5	0	7.8	1.9
CFG	827	1	4	1.3	0.2	745	0	5	0	8.2	-0.4
CKK	148	1	7	2.2	1.1	158	0	9	0	9.8	0.8
CKS	453	1	28	1.5	-0.3	405	0	32	0	10.5	0.3
CLX	414	0	4	1.6	-0.4	272	0	8	0	10.6	-0.8
COA	232	0	39	1.4	0.2	176	0	38	0	8.9	-0.3
CRL	393	0	3	1.6	1.0	369	1	11	0	13.8	-1.8
CSN	110	0	10	1.8	0.1	109	1	10	0	10.0	0.7
CUB	249	1	7	2.1	0.3	228	1	8	0	11.2	-0.2
DAL	3296	0	42	1.5	0.2	3032	0	44	0	5.8	0.1
DCS	29	0	0	1.7	-0.9	22	0	5	0	8.7	-0.3
DHL	126	0	100	6.7	-6.4	68	0	37	0	14.9	4.6
DLH	1126	1	14	1.7	-0.1	1039	0	15	0	7.2	0.7
DRD	331	2	5	1.5	0.0	330	0	8	0	12.3	-2.6
EDW	131	0	3	1.6	0.1	112	0	11	0	13.5	-2.4
EEZ	56	0	7	1.4	0.2	56	0	7	0	6.0	0.0
EIA	356	0	14	1.6	0.2	351	0	100	0	18.1	4.3
ELY	60	0	2	1.6	0.2	44	0	9	0	15.4	-2.1
ETH	25	0	4	0.9	0.0	25	0	4	0	5.7	1.4
EVA	145	1	1	1.3	0.0	164	0	4	0	8.2	-0.3
FCA	275	1	3	1.3	0.2	241	0	7	0	10.7	-0.6
FDX	1800	1	51	1.3	0.3	1681	0	53	0	6.9	0.4
FIN	172	0	4	1.3	0.0	120	0	3	0	7.7	0.5
FJI	885	2	34	1.9	1.0	862	1	31	0	6.6	0.3
FLC	25	0	36	1.0	0.6	25	0	36	0	9.1	0.5
FOM	891	1	25	1.4	0.0	884	0	25	0	6.2	0.6
FWI	583	1	2	1.4	0.0	582	1	8	0	11.5	-2.0

IDENT.	TEMPERATURE					WIND					
	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GCO	122	0	15	1.3	0.2	125	1	57	0	5.3	0.7
GRL	61	0	2	1.6	-0.1	52	0	2	0	4.3	1.1
GTI	256	6	20	1.8	0.5	242	0	16	0	9.2	0.5
HAL	4552	0	40	1.7	0.6	4469	0	40	0	6.4	0.2
HXL	316	1	2	1.2	0.0	277	0	4	0	8.3	0.4
IBE	3869	0	4	1.5	0.5	3842	0	9	0	11.3	-1.4
ICE	1478	0	10	1.5	0.0	1013	0	5	0	7.5	0.8
IWD	516	1	3	1.3	0.1	512	0	7	0	11.2	-1.3
JAL	2373	0	2	1.6	0.6	2329	0	3	0	7.2	0.4
JAZ	1013	1	3	1.4	0.8	994	0	5	0	8.7	0.3
JBU	36	0	0	0.9	-0.1	37	0	0	0	6.5	1.7
KAI	24	8	54	2.0	1.9	22	0	50	0	9.2	0.9
KAL	2130	0	5	1.6	0.3	2105	0	5	0	7.7	0.0
KLM	1462	0	3	1.6	0.2	1115	1	6	0	8.9	-0.3
LAN	455	0	2	1.6	-0.2	454	0	2	0	4.9	0.7
LAP	76	11	54	2.8	2.0	71	3	44	0	6.8	0.0
LDI	339	0	4	2.1	0.8	271	0	8	0	11.3	-1.9
LNE	117	3	4	1.7	0.9	113	0	1	0	8.1	-0.3
LOB	35	0	37	1.0	-0.7	35	0	37	0	9.1	1.1
LOT	254	0	3	1.8	-0.4	156	1	2	0	6.0	0.5
LTU	890	0	4	1.4	0.0	752	1	6	0	8.8	-0.1
LXR	57	5	7	1.8	0.4	57	0	12	0	16.2	-5.3
MAS	382	0	7	1.6	0.4	366	0	7	0	6.4	0.6
MON	85	1	6	1.6	-0.4	68	0	9	0	11.1	-1.7
MPD	419	0	3	1.5	0.3	401	0	5	0	10.0	-1.5
MPH	658	0	3	1.6	-0.5	517	0	5	0	8.8	-0.9
MXA	91	4	16	2.8	1.2	90	1	100	0	15.2	-1.5
MYT	373	1	2	1.3	0.1	281	1	7	0	10.2	-1.6
NAO	305	0	29	1.3	0.3	300	0	29	0	5.8	0.4
NCA	1126	0	3	2.0	0.4	795	1	3	0	6.5	0.4
NWA	7731	1	14	1.5	0.2	7548	0	15	0	7.8	0.1
NZL	3594	0	10	1.3	0.1	3593	0	9	0	4.9	0.3
OAE	699	0	36	1.2	-0.1	633	0	45	0	9.5	1.3
OOM	173	0	5	1.9	-1.2	109	0	9	0	8.3	0.5
PAC	444	2	15	1.8	0.1	423	0	14	0	7.8	0.2
PAL	1349	0	9	1.5	0.2	1301	0	12	0	8.6	0.2
PAO	300	0	47	1.4	0.4	302	0	48	0	7.1	0.8
PBI	720	0	33	1.5	0.0	718	0	32	0	5.8	0.4
PCJ	23	0	48	2.1	1.4	22	0	55	0	9.7	0.5
PLM	333	0	4	2.1	1.4	276	0	8	0	12.5	-1.2
QFA	4010	0	39	1.5	0.3	3992	0	39	0	5.8	0.0
QQA	47	2	47	1.1	0.0	48	2	46	0	5.4	-0.2
RAM	280	1	7	1.7	0.6	216	1	13	0	15.1	-3.0
RCH	249	1	100	3.2	-1.0	217	2	100	0	16.2	-0.1
RRR	35	0	6	2.4	-1.0	37	0	5	0	6.4	0.6
RZO	740	1	4	1.5	-0.2	720	1	13	0	15.9	-3.2
SAA	48	0	6	1.4	0.5	48	0	6	0	7.3	-0.7
SEU	119	1	3	1.7	0.4	110	0	5	0	11.6	-1.6
SIA	379	0	2	1.6	0.6	380	0	2	0	5.4	0.1
SLM	139	1	4	1.1	0.7	138	0	9	0	12.3	-1.6
SOO	26	0	0	1.7	0.6	42	0	0	0	6.8	1.2
SQC	55	2	2	1.2	0.4	54	0	2	0	7.2	0.2
SVA	31	0	10	2.6	0.7	21	0	14	0	11.7	4.3
SVH	302	0	4	1.3	1.1	302	0	4	0	4.1	-0.4
TAG	30	0	23	2.0	0.6	24	0	29	0	5.9	2.3
TAP	728	0	3	1.4	-0.2	679	0	10	0	14.0	-2.8
TCX	68	7	13	1.8	-0.1	39	0	10	0	13.8	-0.9
THA	193	0	3	1.7	0.2	195	0	4	0	8.1	0.1
THT	1049	0	24	1.1	0.5	1049	0	24	0	5.1	0.2

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TPA	45	0	2	1.5	0.2	43	2	5	0	7.2	-1.0
TSC	322	1	4	1.5	-0.4	206	0	4	0	6.4	0.6
UAE	581	0	5	1.4	0.4	580	0	6	0	5.0	0.6
UAL	192200	0	95	1.1	-0.2	192232	0	95	0	4.9	0.5
UPS	1928	0	60	1.9	0.5	1889	0	60	0	7.0	0.5
USA	27	4	7	1.2	0.7	27	0	4	0	4.6	1.0
UVG	20	0	0	1.6	0.8	20	0	0	0	7.2	1.0
VHF	52	0	2	1.5	0.2	53	0	2	0	5.4	-0.8
VIR	213	0	4	1.6	0.0	144	1	7	0	8.9	0.0
VPB	39	0	10	2.4	1.6	25	0	8	0	7.8	0.4
VRG	44	7	45	2.3	1.2	47	0	100	0	12.1	0.1
VVJ	60	3	35	1.6	0.0	65	0	35	0	8.7	0.3
VVR	73	0	45	2.8	1.9	69	0	45	0	5.0	0.8
WOA	352	1	5	1.4	0.3	348	0	9	0	8.0	0.5
XLA	171	1	2	1.5	0.2	165	0	3	0	8.7	-0.4

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	38343	0	10	1.2	0.6	38349	0	10	0	4.8	0.4
B	4088	0	75	1.8	1.2	4088	0	75	0	4.1	0.0
CA	1737	0	77	1.8	1.1	1737	0	77	0	4.7	0.6
EU	222341	0	28	1.2	0.4	222335	0	28	0	4.3	0.3
HK	3799	0	22	1.2	0.5	3799	0	22	0	5.1	0.1
JP	30424	0	53	1.6	1.0	30424	0	52	0	5.4	0.3
LN	57	2	56	4.2	-3.5	54	0	44	0	12.8	2.0
MK	2001	0	5	1.7	1.6	1964	0	5	0	6.0	1.3
SA	5081	0	8	1.8	1.0	5081	0	14	0	5.5	0.2
TN	24	17	38	1.2	0.2	22	0	27	0	8.3	-0.9

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
N	1032	1	21	2.2	0.5	883	0	23	0	7.8	0.3
US ACARS	946515	0	63	1.2	0.3	946499	0	63	0	5.3	0.6

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :1000.0 – 300.1 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

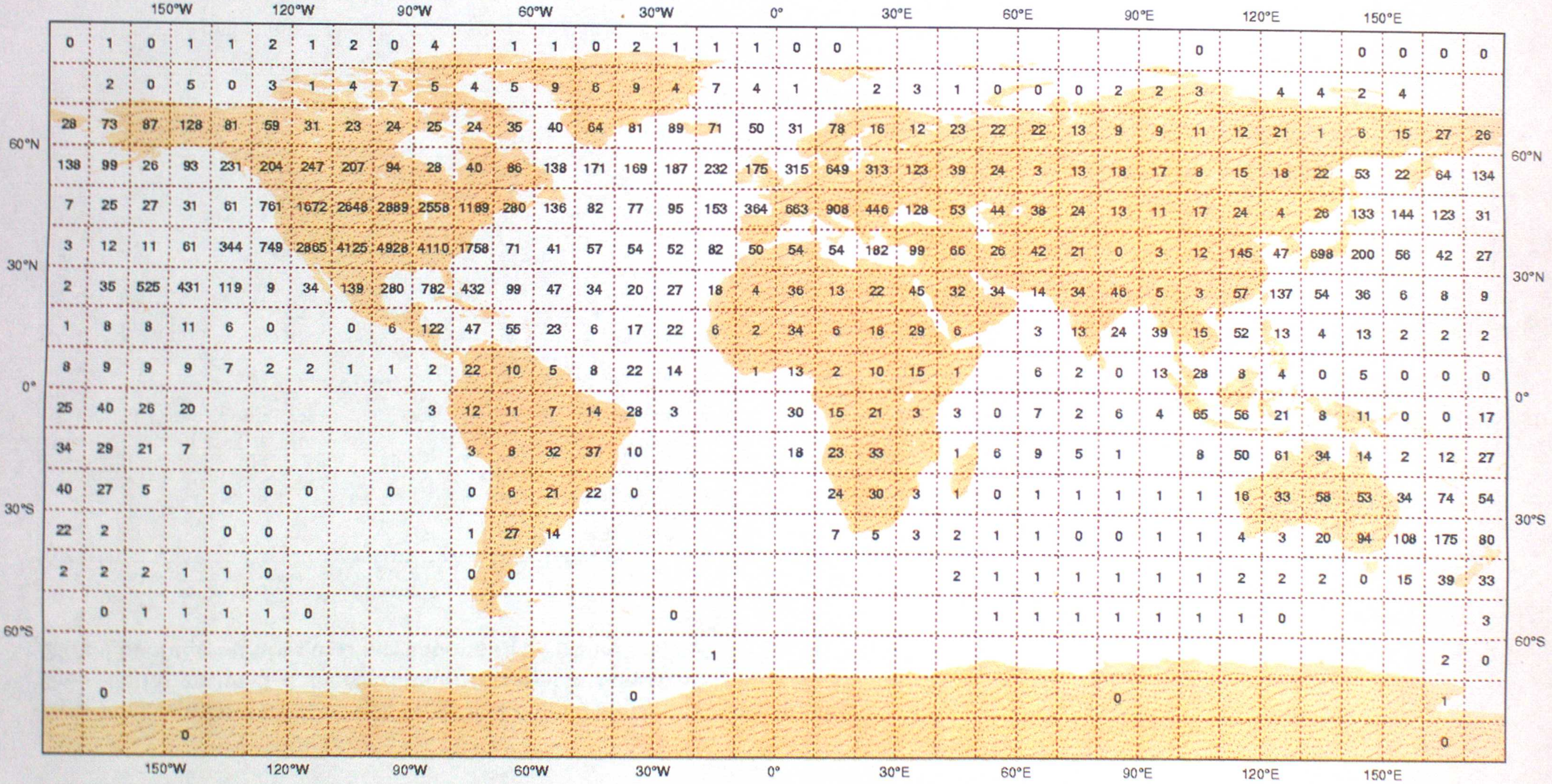
NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	237	0	41	1.1	0.1	224	0	43	0	5.5	1.4
ACA	31	0	23	1.0	0.0	26	0	23	0	6.6	0.5
AFR	75	0	5	1.2	0.1	76	0	8	0	6.0	0.6
AMD	319	0	63	1.1	0.4	319	0	63	0	4.6	0.5
ANZ	175	1	20	1.3	0.0	175	0	19	0	6.4	0.5
AXF	49	0	63	1.0	0.3	49	0	63	0	5.3	-0.7
AZA	22	14	23	1.4	0.3	21	0	10	0	4.8	0.8
CFC	56	0	9	1.7	0.7	52	0	8	0	8.0	1.0
CKS	36	3	19	1.4	-0.6	31	0	26	0	11.7	2.1
DAL	122	1	52	1.3	0.3	117	0	55	0	5.2	0.9
DLH	335	1	15	1.5	-0.2	335	1	18	0	7.8	0.6
EIA	73	0	12	1.1	0.0	75	0	100	0	24.7	14.3
FDX	658	0	32	1.3	0.2	516	0	32	0	7.0	-0.1
GCO	45	2	7	1.0	0.3	46	0	80	0	7.5	0.0
HAL	236	1	43	1.9	0.5	233	0	41	0	5.0	1.6
IBE	35	0	0	1.2	0.3	34	3	6	0	8.8	1.0
ICE	113	1	15	1.7	0.2	104	0	9	0	6.3	-1.1
JAL	84	1	4	1.6	0.7	85	1	4	0	8.6	2.0
KAL	71	3	18	2.2	-0.5	71	0	13	0	8.4	0.1
KIW	27	7	48	2.4	2.0	27	0	44	0	4.3	0.6
KLM	48	0	6	1.5	0.3	36	0	11	0	6.8	0.1
MAS	26	0	35	2.9	-0.8	26	0	31	0	4.6	0.1
MPH	91	0	1	1.6	-0.5	66	0	2	0	6.8	0.7
NCA	155	1	4	1.7	0.0	129	0	5	0	7.8	0.3
NWA	287	0	6	1.3	0.0	284	0	8	0	8.2	-0.3
NZL	21849	0	57	1.2	0.2	21848	0	57	0	4.8	0.2
OAE	46	0	13	1.1	-0.1	30	0	73	0	21.1	3.2
PAC	55	4	15	1.8	0.0	43	0	12	0	6.9	0.6
PAL	22	0	5	0.7	0.2	22	0	5	0	4.5	1.0
QFA	227	3	46	1.5	0.4	228	0	43	0	4.8	0.6
RCH	31	6	100	1.4	0.1	24	0	100	0	11.2	-1.3
RRR	91	3	14	3.0	1.8	93	1	14	0	8.6	0.7
SIA	44	0	0	1.1	0.6	45	0	0	0	5.7	-0.2
SKI	71	6	46	2.7	0.8	83	0	34	0	10.0	2.1
SVH	15301	0	59	1.5	1.0	15301	0	59	0	3.8	0.5
THT	42	0	69	1.0	0.0	42	0	69	0	7.9	2.1
UAE	73	0	5	1.0	0.6	73	0	5	0	4.1	0.5
UAL	346329	0	99	1.1	-0.1	345874	0	99	0	4.3	0.3
UPS	283	0	52	1.5	0.1	272	0	52	0	6.8	0.0
VDA	25	0	4	1.4	-0.7	22	5	14	0	9.8	0.7
WOA	180	1	16	1.8	0.0	140	0	36	0	14.1	0.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	30792	0	49	1.2	0.5	30795	0	49	0	4.3	0.0
B-	36133	0	76	1.4	0.6	36133	0	76	0	3.9	0.2
CA	10973	0	74	1.5	0.5	10973	0	74	0	4.0	0.2
EU	671402	0	69	1.0	0.2	666465	0	69	0	3.9	0.0
HK	3209	0	73	1.2	0.5	3209	0	73	0	4.0	-0.2
JP	59974	0	55	1.2	0.3	59974	0	55	0	5.0	0.6
MK	1922	0	48	1.4	0.8	1885	0	48	0	4.2	0.8
SA	4409	1	57	2.2	0.5	4409	0	59	0	5.2	0.2

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
U	1673822	0	77	1.1	0.3	1669238	0	78	0	4.1	0.3

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 49565



0	1	0	1	1	2	1	2	0	4		1	1	0	2	1	1	1	0	0									0				0	0	0	0
	2	0	5	0	3	1	4	7	5	4	5	9	6	9	4	7	4	1		2	3	1	0	0	0	2	2	3		4	4	2	4		
28	73	87	128	81	59	31	23	24	25	24	35	40	64	81	89	71	50	31	78	16	12	23	22	22	13	9	9	11	12	21	1	6	15	27	26
138	99	26	93	231	204	247	207	94	28	40	86	138	171	169	187	232	175	315	649	313	123	39	24	3	13	18	17	8	15	18	22	53	22	64	134
7	25	27	31	61	761	1672	2648	2889	2558	1189	280	136	82	77	95	153	364	663	908	446	128	53	44	38	24	13	11	17	24	4	26	133	144	123	31
3	12	11	61	344	749	2865	4125	4928	4110	1758	71	41	57	54	52	82	50	54	54	182	99	66	26	42	21	0	3	12	145	47	698	200	56	42	27
2	35	525	431	119	9	34	139	280	782	432	99	47	34	20	27	18	4	36	13	22	45	32	34	14	34	46	5	3	57	137	54	36	6	8	9
1	8	8	11	6	0		0	6	122	47	55	23	6	17	22	6	2	34	6	18	29	6		3	13	24	39	15	52	13	4	13	2	2	2
8	9	9	9	7	2	2	1	1	2	22	10	5	8	22	14		1	13	2	10	15	1		6	2	0	13	28	8	4	0	5	0	0	0
25	40	26	20						3	12	11	7	14	28	3			30	15	21	3	3	0	7	2	6	4	65	56	21	8	11	0	0	17
34	29	21	7							3	8	32	37	10				18	23	33		1	6	9	5	1		8	50	61	34	14	2	12	27
40	27	5		0	0	0		0		0	6	21	22	0					24	30	3	1	0	1	1	1	1	1	16	33	58	53	34	74	54
22	2			0	0					1	27	14							7	5	3	2	1	1	0	0	1	1	4	3	20	94	108	175	80
2	2	2	1	1	0					0	0											2	1	1	1	1	1	1	2	2	2	0	15	39	33
	0	1	1	1	1	0									0								1	1	1	1	1	1	1	0					3
																1																		2	0
	0													0												0								1	
			0																															0	

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 92599

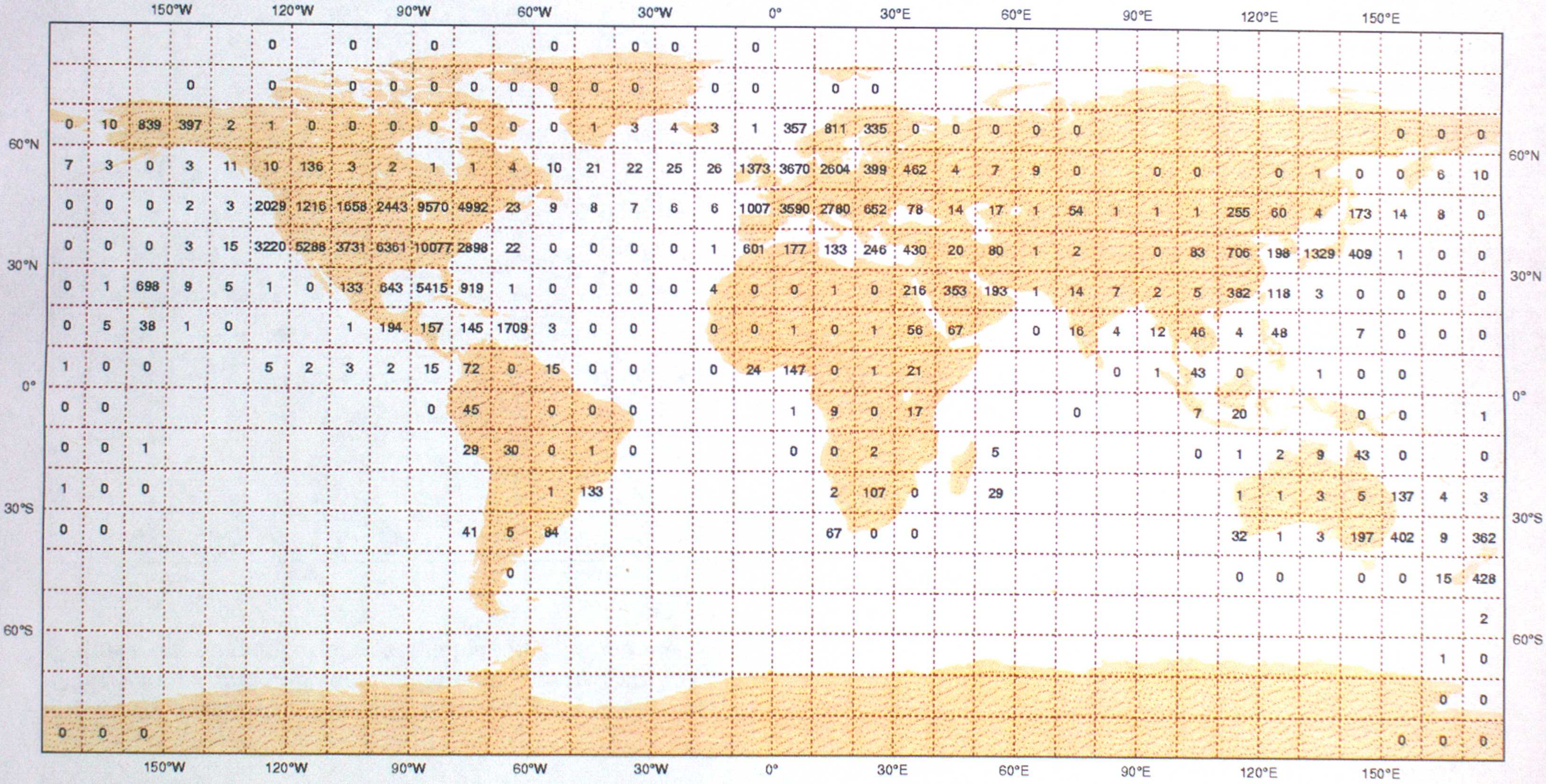

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 10 839 397 2 1 0 0 0 0 0 0 0 1 3 4 3 1 357 811 335 0 0 0 0 0 0 0 0
7 3 0 3 11 10 136 3 2 1 1 4 10 21 22 25 26 1373 3670 2604 399 462 4 7 9 0 0 0 0 1 0 0 6 10
0 0 0 2 3 2029 1216 1658 2443 9570 4992 23 9 8 7 6 6 1007 3590 2780 652 78 14 17 1 54 1 1 1 255 60 4 173 14 8 0
0 0 0 3 15 3220 5288 3731 6361 10077 2898 22 0 0 0 0 1 601 177 133 246 430 20 80 1 2 0 83 706 198 1329 409 1 0 0
0 1 698 9 5 1 0 133 643 5415 919 1 0 0 0 0 4 0 0 1 0 216 353 193 1 14 7 2 5 382 118 3 0 0 0 0
0 5 38 1 0 1 194 157 145 1709 3 0 0 0 0 1 0 1 56 67 0 16 4 12 46 4 48 7 0 0 0
1 0 0 5 2 3 2 15 72 0 15 0 0 0 24 147 0 1 21 0 1 43 0 1 0 0
0 0 0 45 0 0 0 1 9 0 17 0 7 20 0 0 1
0 0 1 29 30 0 1 0 0 0 2 5 0 1 2 9 43 0 0
1 0 0 1 133 2 107 0 29 1 1 3 5 137 4 3
0 0 41 5 84 67 0 0 32 1 3 197 402 9 362
0 0 0 0 15 428
2
1 0
0 0
0 0 0 0 0 0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

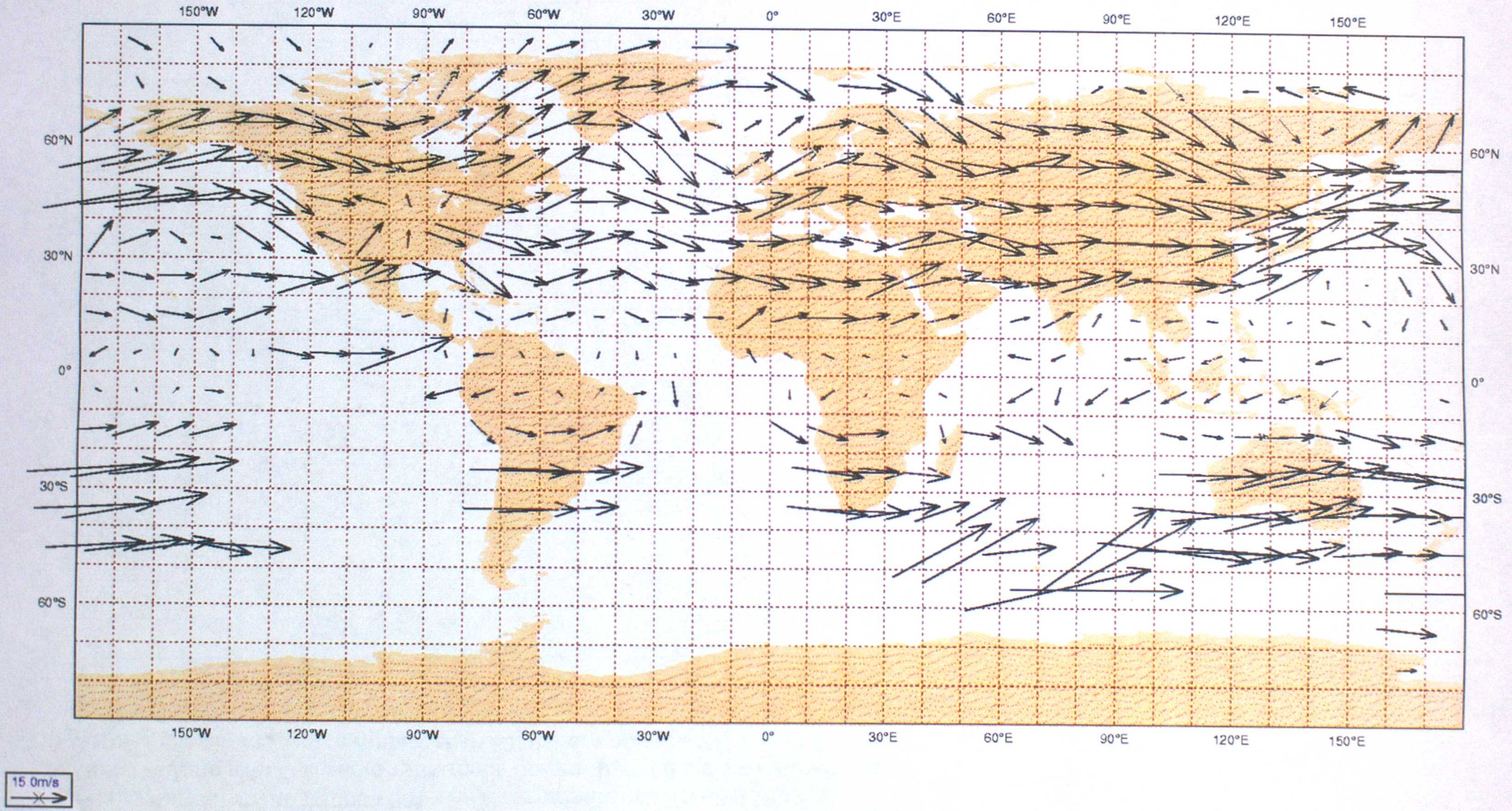

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

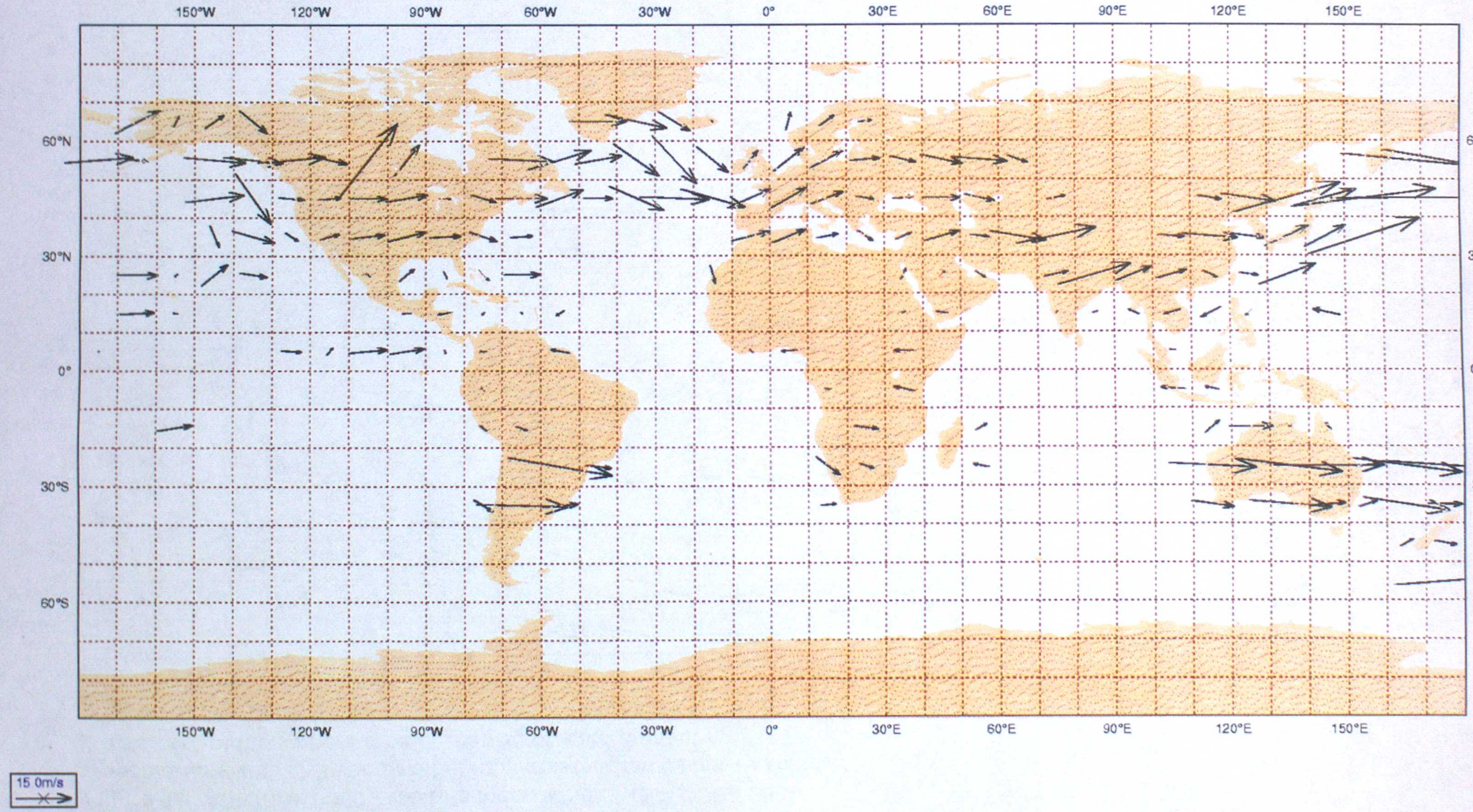

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

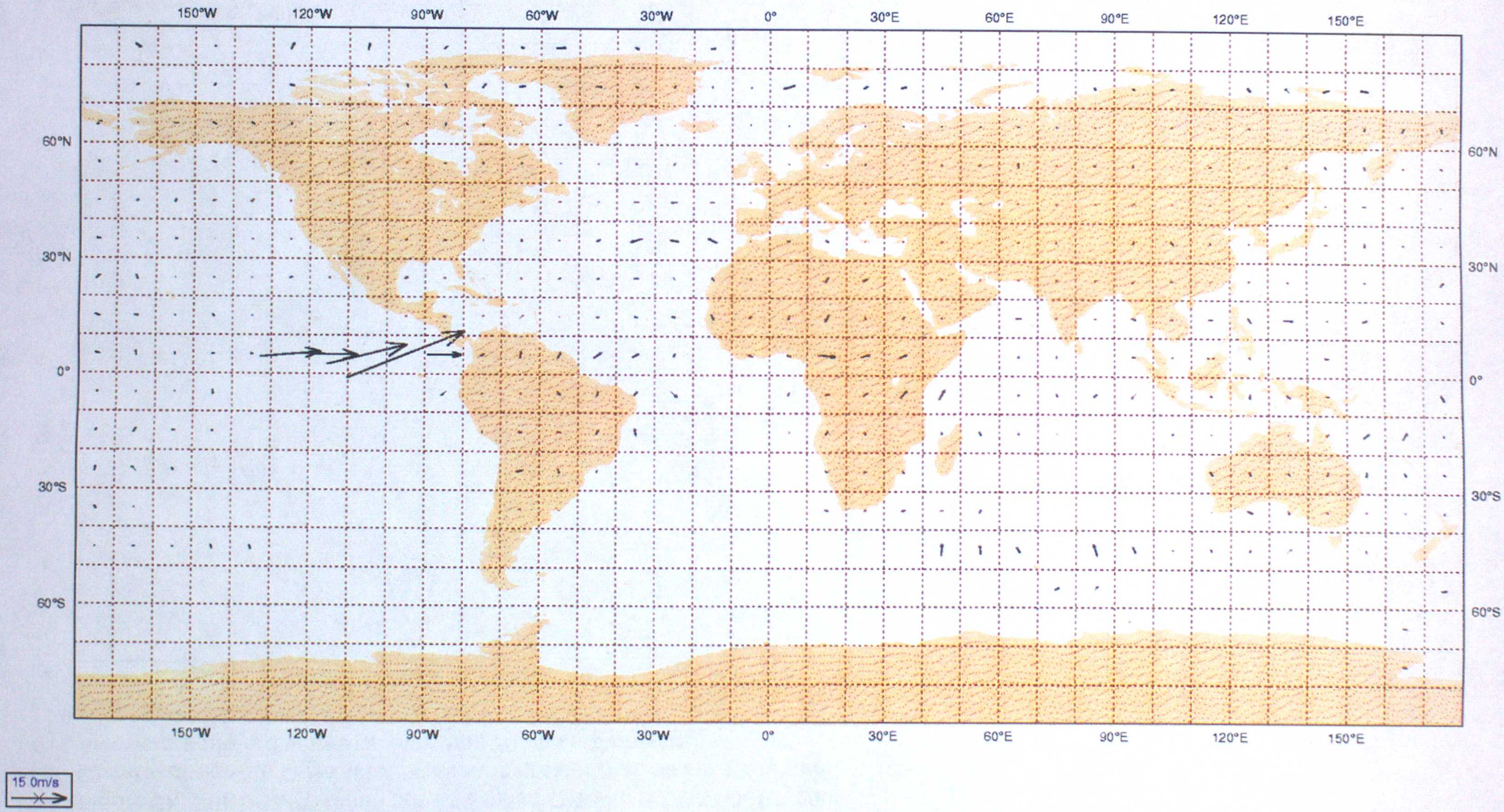

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

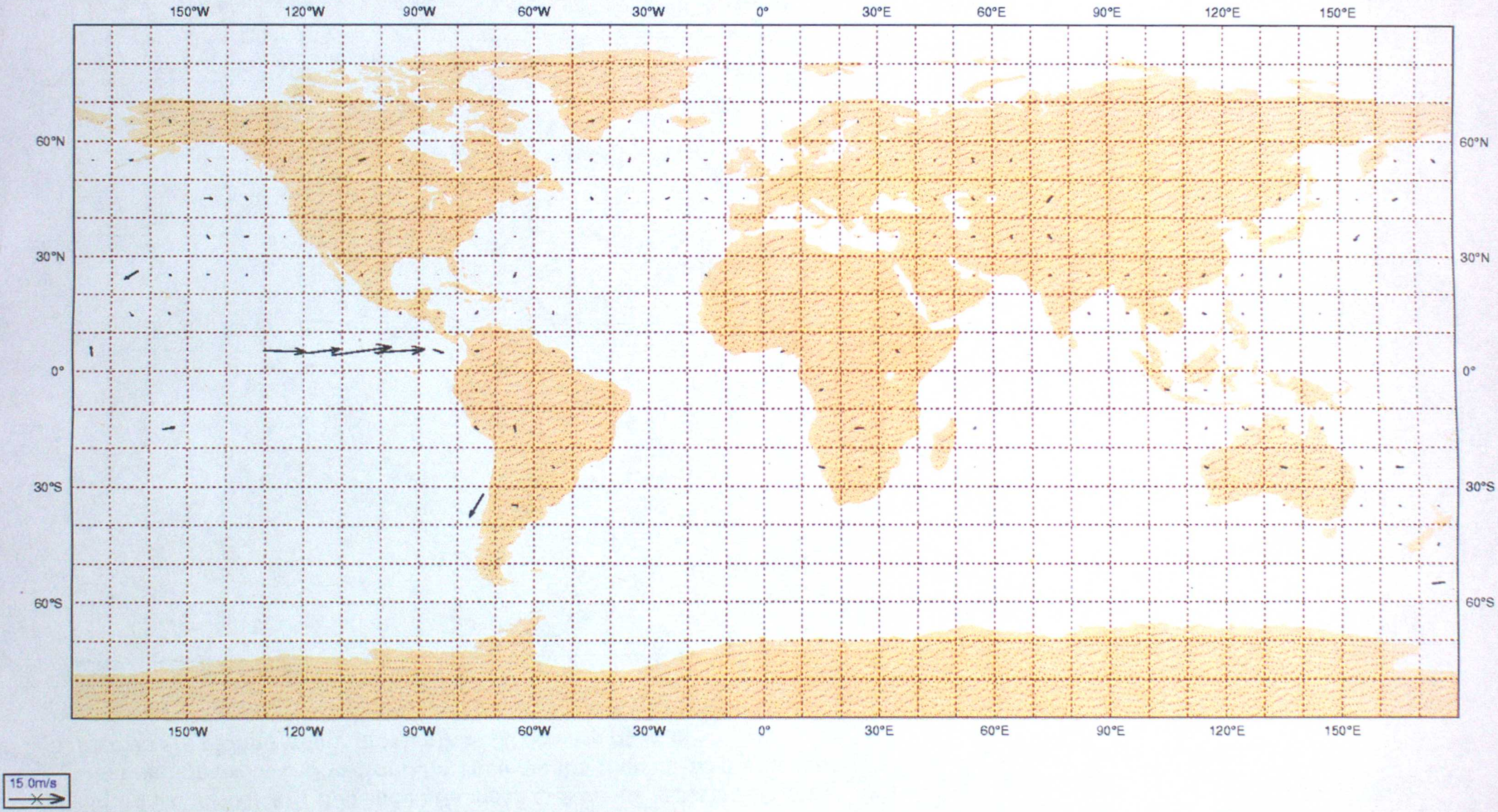
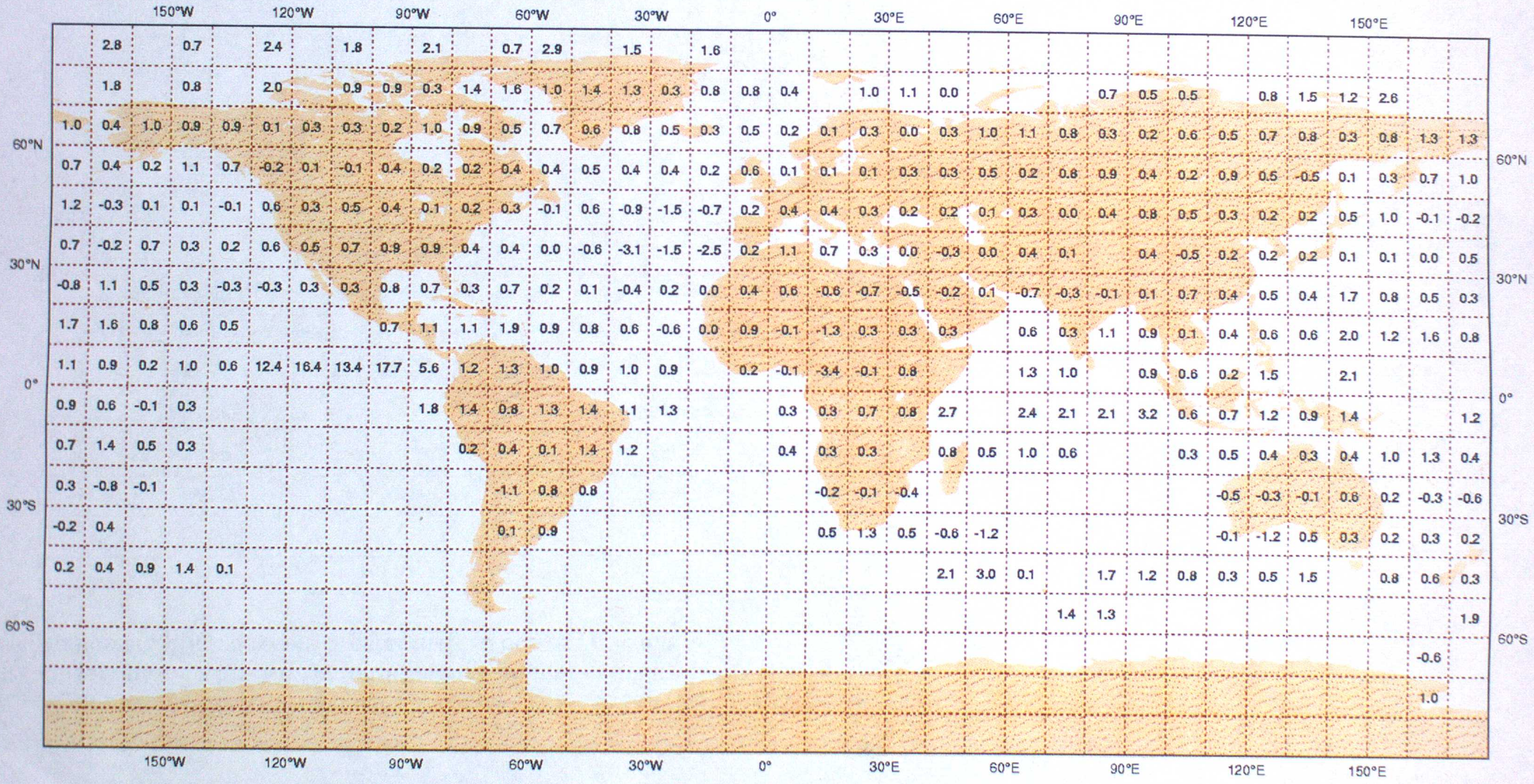

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present



	2.8		0.7		2.4		1.8		2.1		0.7	2.9		1.5		1.6																			
	1.8		0.8		2.0		0.9	0.9	0.3	1.4	1.6	1.0	1.4	1.3	0.3	0.8	0.8	0.4		1.0	1.1	0.0				0.7	0.5	0.5		0.8	1.5	1.2	2.6		
1.0	0.4	1.0	0.9	0.9	0.1	0.3	0.3	0.2	1.0	0.9	0.5	0.7	0.6	0.8	0.5	0.3	0.5	0.2	0.1	0.3	0.0	0.3	1.0	1.1	0.8	0.3	0.2	0.6	0.5	0.7	0.8	0.3	0.8	1.3	1.3
0.7	0.4	0.2	1.1	0.7	-0.2	0.1	-0.1	0.4	0.2	0.2	0.4	0.4	0.5	0.4	0.4	0.2	0.6	0.1	0.1	0.1	0.3	0.3	0.5	0.2	0.8	0.9	0.4	0.2	0.9	0.5	-0.5	0.1	0.3	0.7	1.0
1.2	-0.3	0.1	0.1	-0.1	0.6	0.3	0.5	0.4	0.1	0.2	0.3	-0.1	0.6	-0.9	-1.5	-0.7	0.2	0.4	0.4	0.3	0.2	0.2	0.1	0.3	0.0	0.4	0.8	0.5	0.3	0.2	0.2	0.5	1.0	-0.1	-0.2
0.7	-0.2	0.7	0.3	0.2	0.6	0.5	0.7	0.9	0.9	0.4	0.4	0.0	-0.6	-3.1	-1.5	-2.5	0.2	1.1	0.7	0.3	0.0	-0.3	0.0	0.4	0.1		0.4	-0.5	0.2	0.2	0.2	0.1	0.1	0.0	0.5
-0.8	1.1	0.5	0.3	-0.3	-0.3	0.3	0.3	0.8	0.7	0.3	0.7	0.2	0.1	-0.4	0.2	0.0	0.4	0.6	-0.6	-0.7	-0.5	-0.2	0.1	-0.7	-0.3	-0.1	0.1	0.7	0.4	0.5	0.4	1.7	0.8	0.5	0.3
1.7	1.6	0.8	0.6	0.5				0.7	1.1	1.1	1.9	0.9	0.8	0.6	-0.6	0.0	0.9	-0.1	-1.3	0.3	0.3	0.3		0.6	0.3	1.1	0.9	0.1	0.4	0.6	0.6	2.0	1.2	1.6	0.8
1.1	0.9	0.2	1.0	0.6	12.4	16.4	13.4	17.7	5.6	1.2	1.3	1.0	0.9	1.0	0.9		0.2	-0.1	-3.4	-0.1	0.8			1.3	1.0		0.9	0.6	0.2	1.5		2.1			
0.9	0.6	-0.1	0.3						1.8	1.4	0.8	1.3	1.4	1.1	1.3			0.3	0.3	0.7	0.8	2.7		2.4	2.1	2.1	3.2	0.6	0.7	1.2	0.9	1.4			1.2
0.7	1.4	0.5	0.3							0.2	0.4	0.1	1.4	1.2				0.4	0.3	0.3		0.8	0.5	1.0	0.6			0.3	0.5	0.4	0.3	0.4	1.0	1.3	0.4
0.3	-0.8	-0.1									-1.1	0.8	0.8						-0.2	-0.1	-0.4								-0.5	-0.3	-0.1	0.6	0.2	-0.3	-0.6
-0.2	0.4										0.1	0.9							0.5	1.3	0.5	-0.6	-1.2						-0.1	-1.2	0.5	0.3	0.2	0.3	0.2
0.2	0.4	0.9	1.4	0.1																		2.1	3.0	0.1		1.7	1.2	0.8	0.3	0.5	1.5		0.8	0.6	0.3
																									1.4	1.3									1.9
																																		-0.6	
																																		1.0	

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

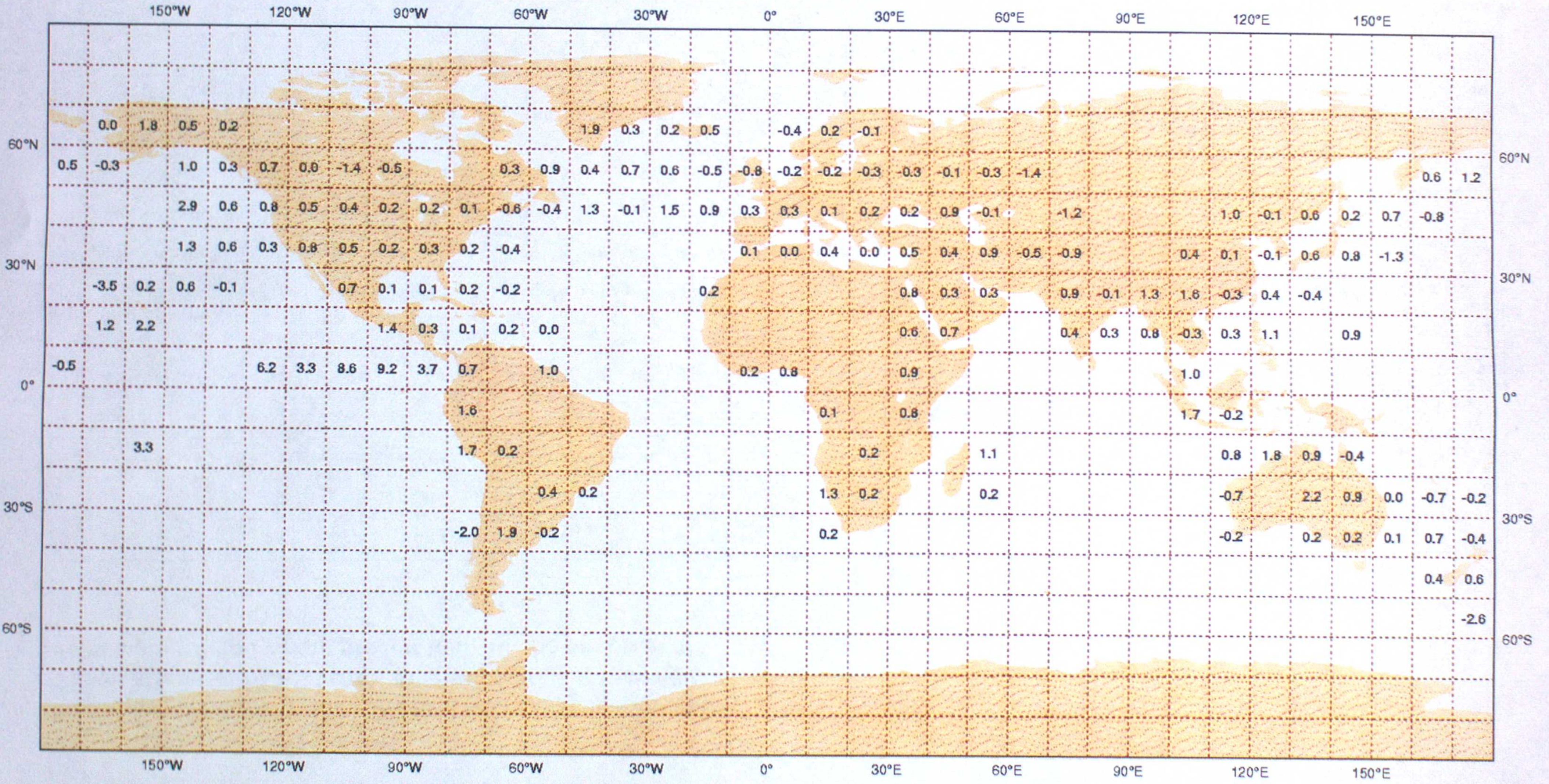

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0.0 1.8 0.5 0.2 1.9 0.3 0.2 0.5 -0.4 0.2 -0.1
0.5 -0.3 1.0 0.3 0.7 0.0 -1.4 -0.5 0.3 0.9 0.4 0.7 0.6 -0.5 -0.8 -0.2 -0.2 -0.3 -0.3 -0.1 -0.3 -1.4 0.6 1.2
2.9 0.6 0.8 0.5 0.4 0.2 0.2 0.1 -0.6 -0.4 1.3 -0.1 1.5 0.9 0.3 0.3 0.1 0.2 0.2 0.9 -0.1 -1.2 1.0 -0.1 0.6 0.2 0.7 -0.8
1.3 0.6 0.3 0.8 0.5 0.2 0.3 0.2 -0.4 0.1 0.0 0.4 0.0 0.5 0.4 0.9 -0.5 -0.9 0.4 0.1 -0.1 0.6 0.8 -1.3
-3.5 0.2 0.6 -0.1 0.7 0.1 0.1 0.2 -0.2 0.2 0.8 0.3 0.3 0.9 -0.1 1.3 1.6 -0.3 0.4 -0.4
1.2 2.2 1.4 0.3 0.1 0.2 0.0 0.6 0.7 0.4 0.3 0.8 -0.3 0.3 1.1 0.9
-0.5 6.2 3.3 8.6 9.2 3.7 0.7 1.0 0.2 0.8 0.9 1.0
1.6 0.1 0.8 1.7 -0.2
3.3 1.7 0.2 0.2 1.1 0.8 1.8 0.9 -0.4
0.4 0.2 1.3 0.2 0.2 -0.7 2.2 0.9 0.0 -0.7 -0.2
-2.0 1.9 -0.2 0.2 -0.2 0.2 0.2 0.1 0.7 -0.4
0.4 0.6
-2.6

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

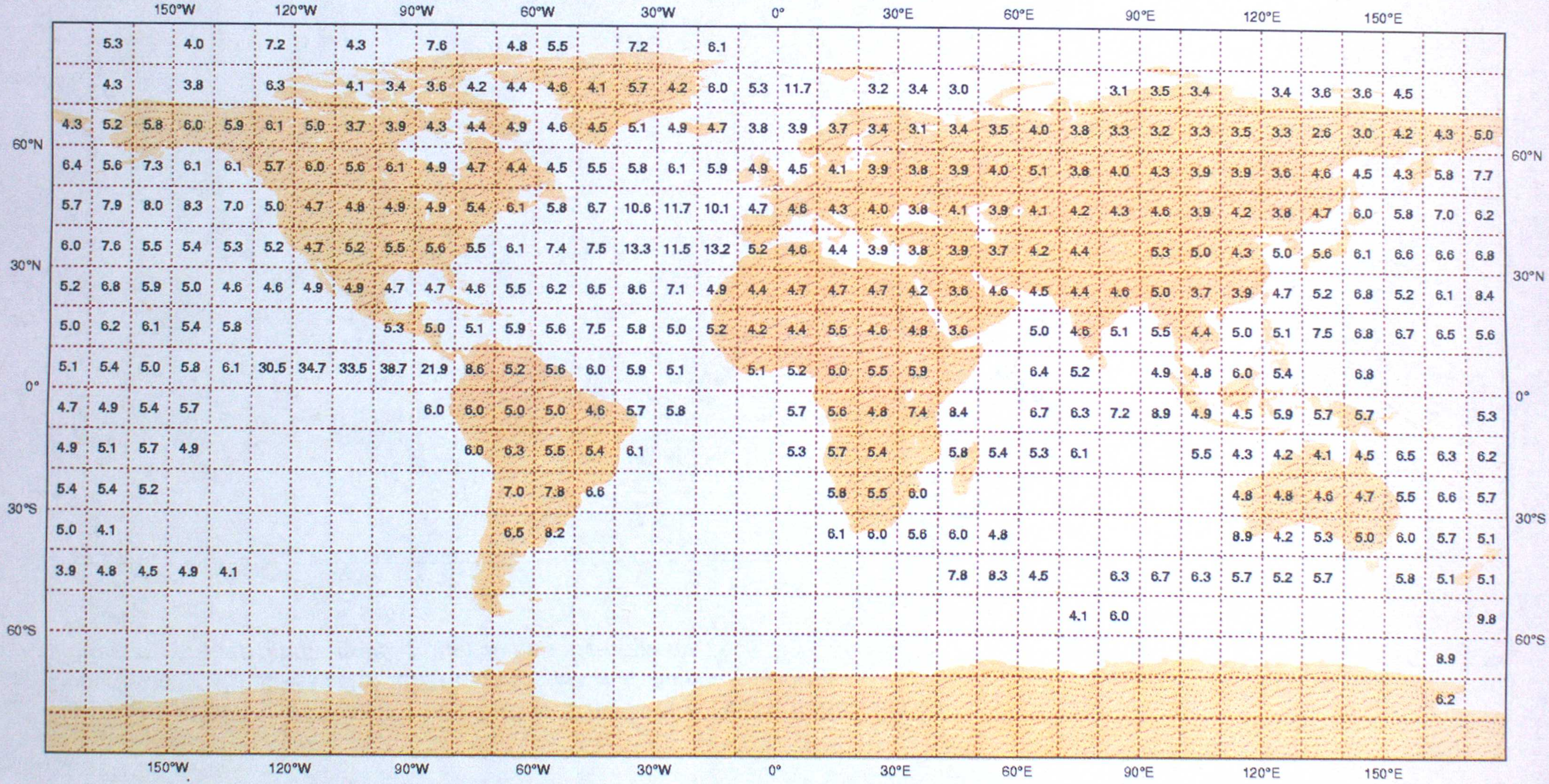

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
5.3 4.0 7.2 4.3 7.6 4.8 5.5 7.2 6.1
4.3 3.8 6.3 4.1 3.4 3.6 4.2 4.4 4.6 4.1 5.7 4.2 6.0 5.3 11.7 3.2 3.4 3.0 3.1 3.5 3.4 3.4 3.6 3.6 4.5
4.3 5.2 5.8 6.0 5.9 6.1 5.0 3.7 3.9 4.3 4.4 4.9 4.6 4.5 5.1 4.9 4.7 3.8 3.9 3.7 3.4 3.1 3.4 3.5 4.0 3.8 3.3 3.2 3.3 3.5 3.3 2.6 3.0 4.2 4.3 5.0
6.4 5.6 7.3 6.1 6.1 5.7 6.0 5.6 6.1 4.9 4.7 4.4 4.5 5.5 5.8 6.1 5.9 4.9 4.5 4.1 3.9 3.8 3.9 4.0 5.1 3.8 4.0 4.3 3.9 3.9 3.6 4.6 4.5 4.3 5.8 7.7
5.7 7.9 8.0 8.3 7.0 5.0 4.7 4.8 4.9 4.9 5.4 6.1 5.8 6.7 10.6 11.7 10.1 4.7 4.6 4.3 4.0 3.8 4.1 3.9 4.1 4.2 4.3 4.6 3.9 4.2 3.8 4.7 6.0 5.8 7.0 6.2
6.0 7.6 5.5 5.4 5.3 5.2 4.7 5.2 5.5 5.6 5.5 6.1 7.4 7.5 13.3 11.5 13.2 5.2 4.6 4.4 3.9 3.8 3.9 3.7 4.2 4.4 5.3 5.0 4.3 5.0 5.6 6.1 6.6 6.6 6.8
5.2 6.8 5.9 5.0 4.6 4.6 4.9 4.9 4.7 4.7 4.6 5.5 6.2 6.5 8.6 7.1 4.9 4.4 4.7 4.7 4.7 4.2 3.6 4.6 4.5 4.4 4.6 5.0 3.7 3.9 4.7 5.2 6.8 5.2 6.1 8.4
5.0 6.2 6.1 5.4 5.8 5.3 5.0 5.1 5.9 5.6 7.5 5.8 5.0 5.2 4.2 4.4 5.5 4.6 4.8 3.6 5.0 4.6 5.1 5.5 4.4 5.0 5.1 7.5 6.8 6.7 6.5 5.6
5.1 5.4 5.0 5.8 6.1 30.5 34.7 33.5 38.7 21.9 8.6 5.2 5.6 6.0 5.9 5.1 5.1 5.2 6.0 5.5 5.9 6.4 5.2 4.9 4.8 6.0 5.4 6.8
4.7 4.9 5.4 5.7 6.0 6.0 5.0 5.0 4.6 5.7 5.8 5.7 5.6 4.8 7.4 8.4 6.7 6.3 7.2 8.9 4.9 4.5 5.9 5.7 5.7 5.3
4.9 5.1 5.7 4.9 6.0 6.3 5.5 5.4 6.1 5.3 5.7 5.4 5.8 5.4 5.3 6.1 5.5 4.3 4.2 4.1 4.5 6.5 6.3 6.2
5.4 5.4 5.2 7.0 7.8 6.6 5.8 5.5 6.0 4.8 4.8 4.6 4.7 5.5 6.6 5.7
5.0 4.1 6.5 8.2 6.1 6.0 5.6 6.0 4.8 8.9 4.2 5.3 5.0 6.0 5.7 5.1
3.9 4.8 4.5 4.9 4.1 7.8 8.3 4.5 6.3 6.7 6.3 5.7 5.2 5.7 5.8 5.1 5.1
4.1 6.0 9.8
8.9
6.2

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). OCTOBER 2004
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

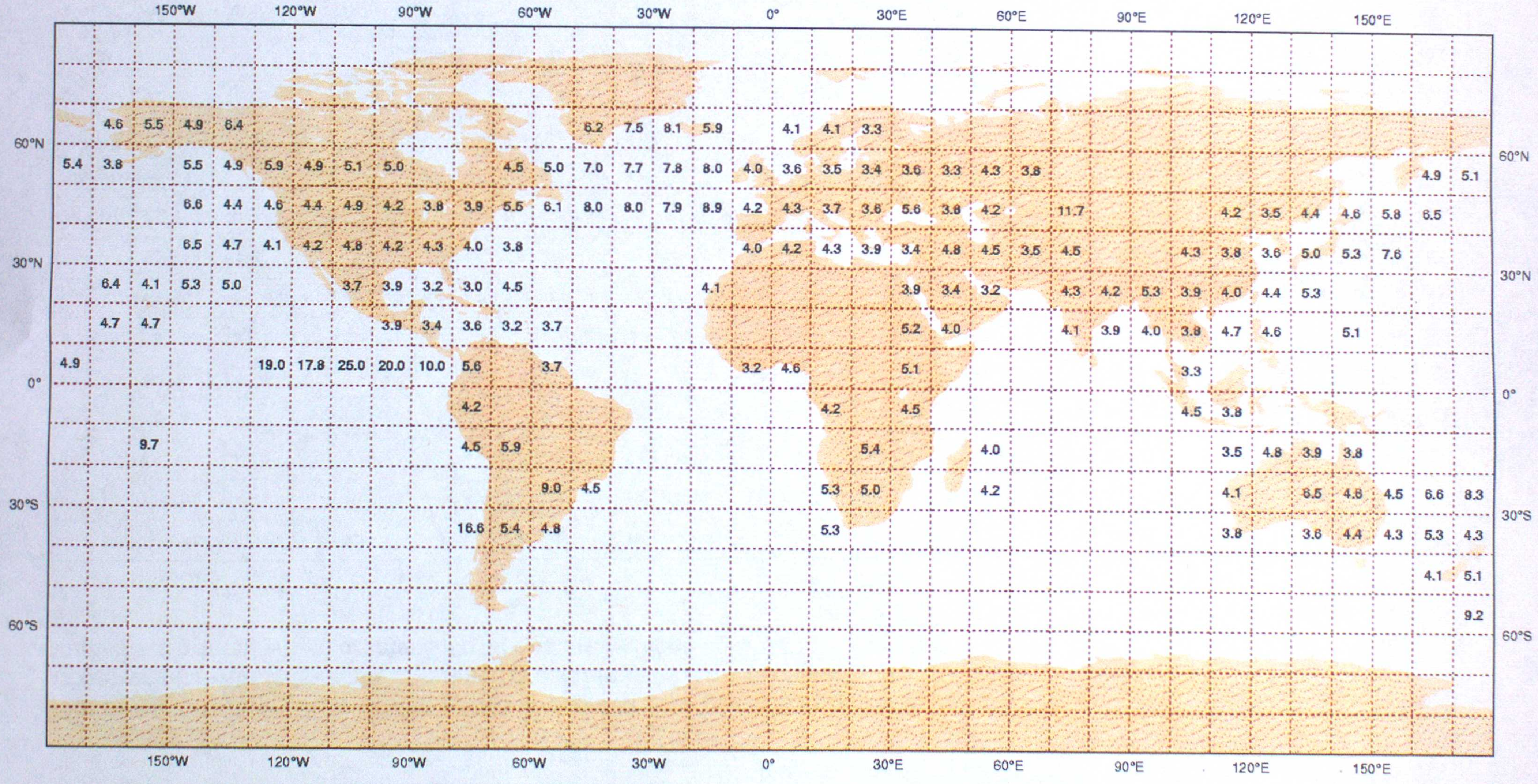

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
4.6 5.5 4.9 6.4 6.2 7.5 8.1 5.9 4.1 4.1 3.3
5.4 3.8 5.5 4.9 5.9 4.9 5.1 5.0 4.5 5.0 7.0 7.7 7.8 8.0 4.0 3.6 3.5 3.4 3.6 3.3 4.3 3.8 4.9 5.1
6.6 4.4 4.6 4.4 4.9 4.2 3.8 3.9 5.5 6.1 8.0 8.0 7.9 8.9 4.2 4.3 3.7 3.6 5.6 3.8 4.2 11.7 4.2 3.5 4.4 4.6 5.8 6.5
6.5 4.7 4.1 4.2 4.8 4.2 4.3 4.0 3.8 4.0 4.2 4.3 3.9 3.4 4.8 4.5 3.5 4.5 4.3 3.8 3.6 5.0 5.3 7.6
6.4 4.1 5.3 5.0 3.7 3.9 3.2 3.0 4.5 4.1 3.9 3.4 3.2 4.3 4.2 5.3 3.9 4.0 4.4 5.3
4.7 4.7 3.9 3.4 3.6 3.2 3.7 5.2 4.0 4.1 3.9 4.0 3.8 4.7 4.6 5.1
4.9 19.0 17.8 25.0 20.0 10.0 5.6 3.7 3.2 4.6 5.1 3.3
4.2 4.2 4.5 4.5 3.8
9.7 4.5 5.9 5.4 4.0 3.5 4.8 3.9 3.8
9.0 4.5 5.3 5.0 4.2 4.1 6.5 4.6 4.5 6.6 8.3
16.6 5.4 4.8 5.3 3.8 3.6 4.4 4.3 5.3 4.3
4.1 5.1
9.2

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
23804	00	Z	1000	62/ 51	17	7	30.9	-24.8	39.6	8
24959	12	Z	1000	62/ 130	21	8	34.8	-50.7	61.5	8
34247	12	Z	50	50/ 41	27	0	42.9	179.0	184.1	8
42027	00	Z	200	34/ 75	12	0	53.6	-106.7	119.4	4
42101	00	Z	150	30/ 76	23	0	54.5	-106.4	119.5	4
42101	12	Z	150	30/ 76	26	0	77.1	-48.6	91.2	4
42182	00	Z	1000	29/ 77	8	19	6.0	-91.4	91.6	11
42182	12	Z	1000	29/ 77	4	26	3.5	-94.0	94.1	11
42314	00	Z	100	27/ 95	12	0	32.5	-180.7	183.6	5
42314	12	Z	200	27/ 95	10	0	37.3	-175.4	179.3	5
42339	00	Z	200	26/ 73	17	1	94.1	-88.3	129.1	7
42339	12	Z	1000	26/ 73	1	22	0.0	93.0	93.0	8
42361	00	Z	1000	26/ 78	14	10	5.6	-89.8	90.0	6
42361	12	Z	1000	26/ 78	2	23	1.0	-97.0	97.0	7
42369	00	Z	200	27/ 81	20	1	37.4	-154.5	159.0	9
42369	12	Z	150	27/ 81	15	3	55.2	-168.8	177.6	9
42397	12	Z	200	27/ 88	10	0	49.0	-119.4	129.1	4
42410	00	Z	1000	26/ 92	8	19	5.2	-91.1	91.3	6
42410	12	Z	200	26/ 92	16	0	75.0	-120.2	141.7	7
42492	00	Z	150	26/ 85	16	0	51.9	-104.2	116.4	4
42492	12	Z	150	26/ 85	23	1	57.9	-120.5	133.7	4
42647	00	Z	150	23/ 73	16	0	64.1	-125.4	140.8	5
42701	12	Z	150	23/ 85	25	1	81.1	-110.2	136.9	4
42724	12	Z	150	24/ 91	24	5	72.9	-180.0	194.2	6
42809	00	Z	200	23/ 88	16	1	70.8	-73.9	102.3	8
42809	12	Z	200	23/ 88	21	2	55.1	-121.3	133.3	9
42867	00	Z	150	21/ 79	22	3	52.2	-174.6	182.3	8
42867	12	Z	200	21/ 79	22	1	65.5	-85.6	107.8	8
42874	00	Z	100	21/ 82	11	0	123.8	-122.9	174.5	4
42874	12	Z	150	21/ 82	12	0	59.8	-145.7	157.5	4
42971	12	Z	150	20/ 86	15	2	82.1	-92.1	123.4	4
43003	00	Z	200	19/ 73	20	6	73.0	-145.9	163.2	11
43003	12	Z	1000	19/ 73	29	0	10.9	-65.9	66.8	11
43014	00	Z	200	20/ 75	15	1	102.4	-90.7	136.7	4
43014	12	Z	200	20/ 75	13	0	93.2	-66.9	114.8	4
43041	00	Z	150	19/ 82	13	0	115.0	-53.8	127.0	4
43128	00	Z	150	17/ 78	17	0	103.5	-164.0	193.9	4
43128	12	Z	100	17/ 78	11	0	100.0	-138.5	170.8	4
43150	00	Z	1000	18/ 83	16	10	27.4	-31.4	41.7	5
43150	12	Z	1000	18/ 83	19	8	27.4	-53.9	60.4	5
43185	00	Z	150	16/ 81	20	0	85.5	-74.0	113.1	6
43185	12	Z	200	16/ 81	17	0	80.4	-55.4	97.6	5
43192	00	Z	1000	15/ 74	7	19	4.7	-95.3	95.4	7
43192	12	Z	200	15/ 74	13	0	64.8	-64.4	91.3	4
43279	00	Z	200	13/ 80	20	1	69.7	-95.6	118.4	6
43279	12	Z	250	13/ 80	24	0	57.4	-45.4	73.2	4
43285	00	Z	1000	13/ 75	1	27	0.0	-100.0	100.0	5
43285	12	Z	100	13/ 75	13	0	124.2	-30.3	127.8	4
43295	12	Z	30	13/ 78	10	0	142.9	133.9	195.8	6
43333	00	Z	150	12/ 93	25	1	123.7	8.6	124.0	7
43346	12	Z	200	11/ 80	12	0	113.5	26.0	116.5	7
43353	00	Z	1000	10/ 76	27	0	10.0	-74.3	75.0	8
43353	12	Z	1000	10/ 76	25	3	8.9	-83.3	83.8	4
43369	12	Z	250	8/ 73	11	0	80.8	26.4	85.0	4
43371	00	Z	200	8/ 77	24	0	62.0	-101.1	118.6	7
43371	12	Z	150	8/ 77	23	1	102.3	-49.3	113.6	5
47058	00	Z	250	39/ 126	19	1	54.6	-71.8	90.2	5
72280	12	Z	1000	33/-115	10	4	18.0	-66.3	68.7	4
78583	00	Z	1000	18/ -88	9	2	17.3	-33.9	38.1	4
84378	12	Z	850	-4/ -73	13	0	4.2	54.8	54.9	5

Figure 8. TEMP 500 hPa geopotential mean daily count. OCTOBER 2004
All hours
Global average number of observations in 24 hours = 1169

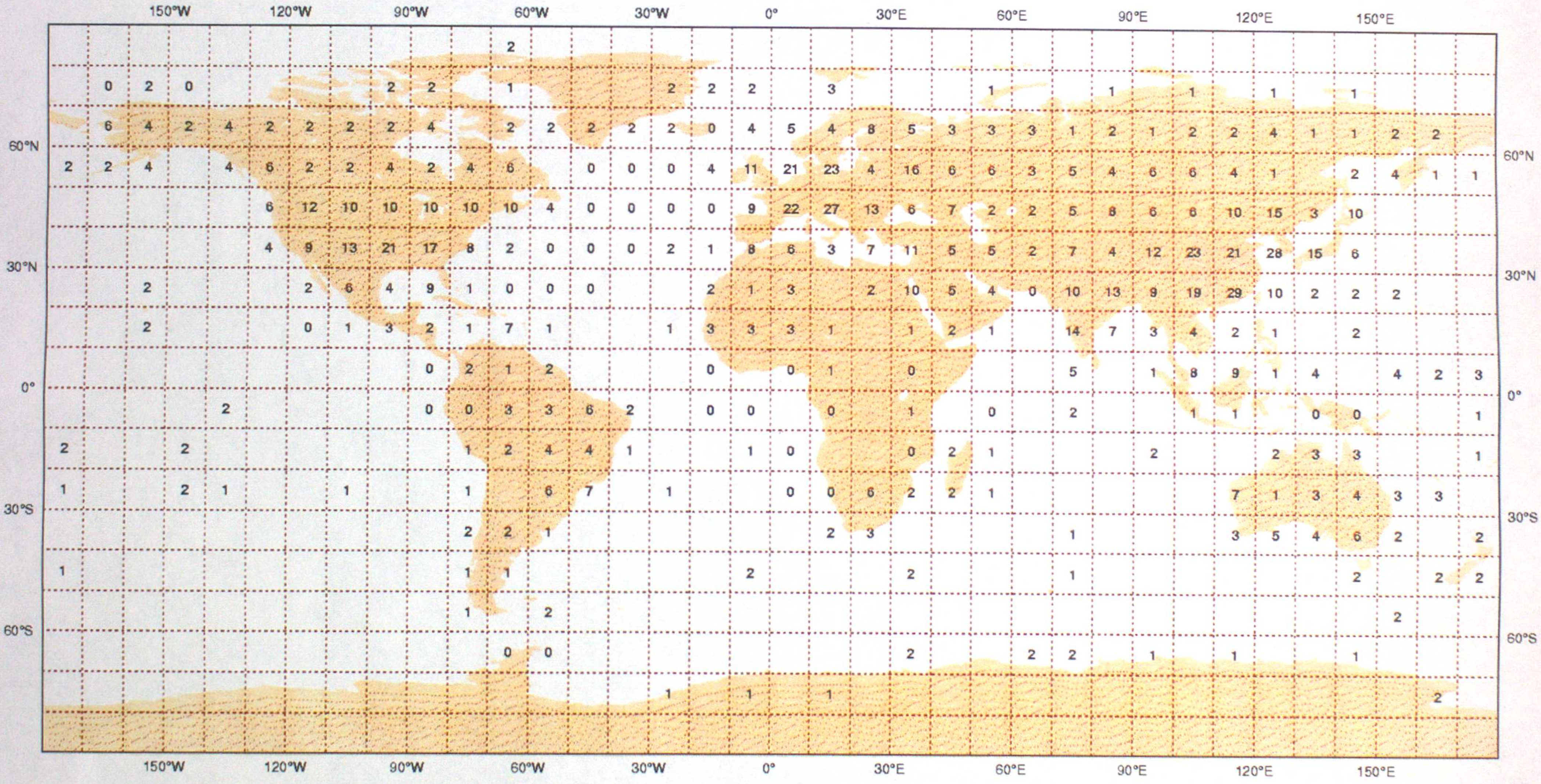

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2
0 2 0 2 2 1 2 2 2 3 1 1 1 1 1
6 4 2 4 2 2 2 2 4 2 2 2 2 2 0 4 5 4 8 5 3 3 3 1 2 1 2 2 4 1 1 2 2
2 2 4 4 6 2 2 4 2 4 6 0 0 0 4 11 21 23 4 16 6 6 3 5 4 6 6 4 1 2 4 1 1
6 12 10 10 10 10 10 4 0 0 0 0 9 22 27 13 6 7 2 2 5 8 6 6 10 15 3 10
4 9 13 21 17 8 2 0 0 0 2 1 8 6 3 7 11 5 5 2 7 4 12 23 21 28 15 6
2 2 6 4 9 1 0 0 0 2 1 3 2 10 5 4 0 10 13 9 19 29 10 2 2 2
2 0 1 3 2 1 7 1 1 3 3 3 1 1 2 1 14 7 3 4 2 1 2
0 2 1 2 0 0 1 0 5 1 8 9 1 4 4 2 3
2 0 0 3 3 6 2 0 0 0 1 0 2 1 1 0 0 1
2 2 1 2 4 4 1 1 0 0 2 1 2 2 3 3 1
1 2 1 1 1 6 7 1 0 0 6 2 2 1 7 1 3 4 3 3
2 2 1 2 3 1 3 5 4 6 2 2
1 1 1 2 2 1 2 2 2
1 2 2
0 0 2 2 2 1 1 1
1 1 1 2

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
40809	12	V	250	33/ 59	12	0	100	-6.5	5.1	17.1	1
40848	00	V	200	30/ 53	11	0	9	8.7	-3.0	19.7	4
47058	00	V	300	39/ 126	14	0	100	-3.7	0.3	20.2	1
56146	00	V	150	32/ 100	14	0	100	8.6	-2.6	15.5	1
60620	12	V	300	28/ 0	11	0	100	-6.2	4.0	16.0	1
62337	12	V	200	31/ 34	26	0	100	-9.5	0.5	16.5	1
68461	12	V	300	-28/ 28	10	0	100	6.2	-3.0	15.5	1
68512	12	V	150	-30/ 18	14	0	100	-3.3	5.3	16.7	1
70273	00	V	400	61/-150	30	0	3	-2.2	-1.7	15.5	1

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. OCTOBER 2004
All hours
Global average number of observations in 24 hours = 1320

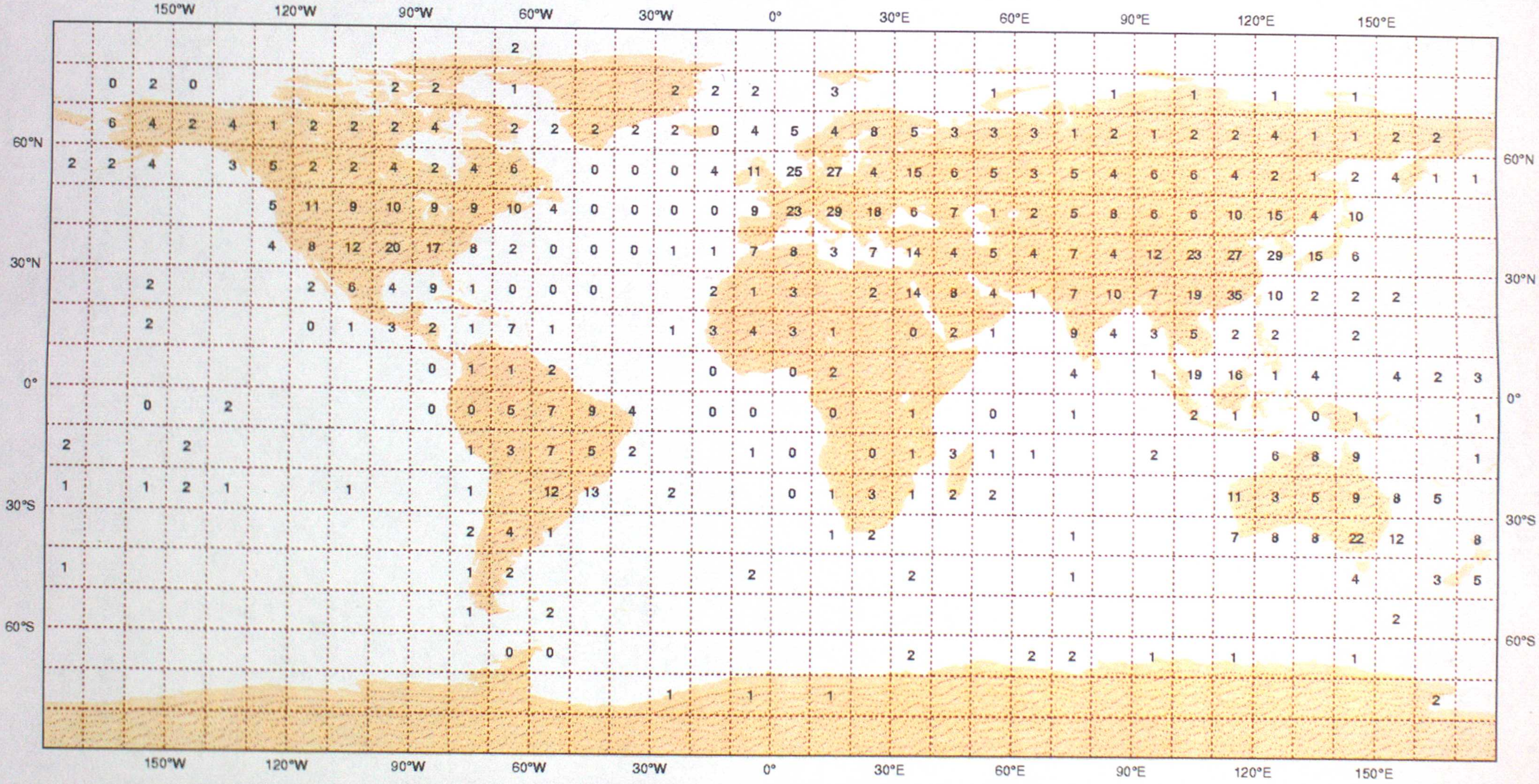

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
2
0 2 0 2 2 1 2 2 2 3 1 1 1 1 1
6 4 2 4 1 2 2 2 4 2 2 2 2 2 0 4 5 4 8 5 3 3 3 1 2 1 2 2 4 1 1 2 2
2 2 4 3 5 2 2 4 2 4 6 0 0 0 4 11 25 27 4 15 6 5 3 5 4 6 6 4 2 1 2 4 1 1
5 11 9 10 9 9 10 4 0 0 0 0 9 23 29 18 6 7 1 2 5 8 6 6 10 15 4 10
4 8 12 20 17 8 2 0 0 0 1 1 7 8 3 7 14 4 5 4 7 4 12 23 27 29 15 6
2 2 6 4 9 1 0 0 0 2 1 3 2 14 8 4 1 7 10 7 19 35 10 2 2 2
2 0 1 3 2 1 7 1 1 3 4 3 1 0 2 1 9 4 3 5 2 2 2
0 1 1 2 0 0 2 4 1 19 16 1 4 4 2 3
0 2 0 0 5 7 9 4 0 0 0 1 0 1 2 1 0 1 1
2 2 1 3 7 5 2 1 0 0 1 3 1 1 2 6 8 9 1
1 1 2 1 1 1 12 13 2 0 1 3 1 2 2 11 3 5 9 8 5
2 4 1 1 2 1 7 8 8 22 12 8
1 1 2 2 2 1 4 3 5
1 2 2
0 0 2 2 2 1 1 1
1 1 1 2

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

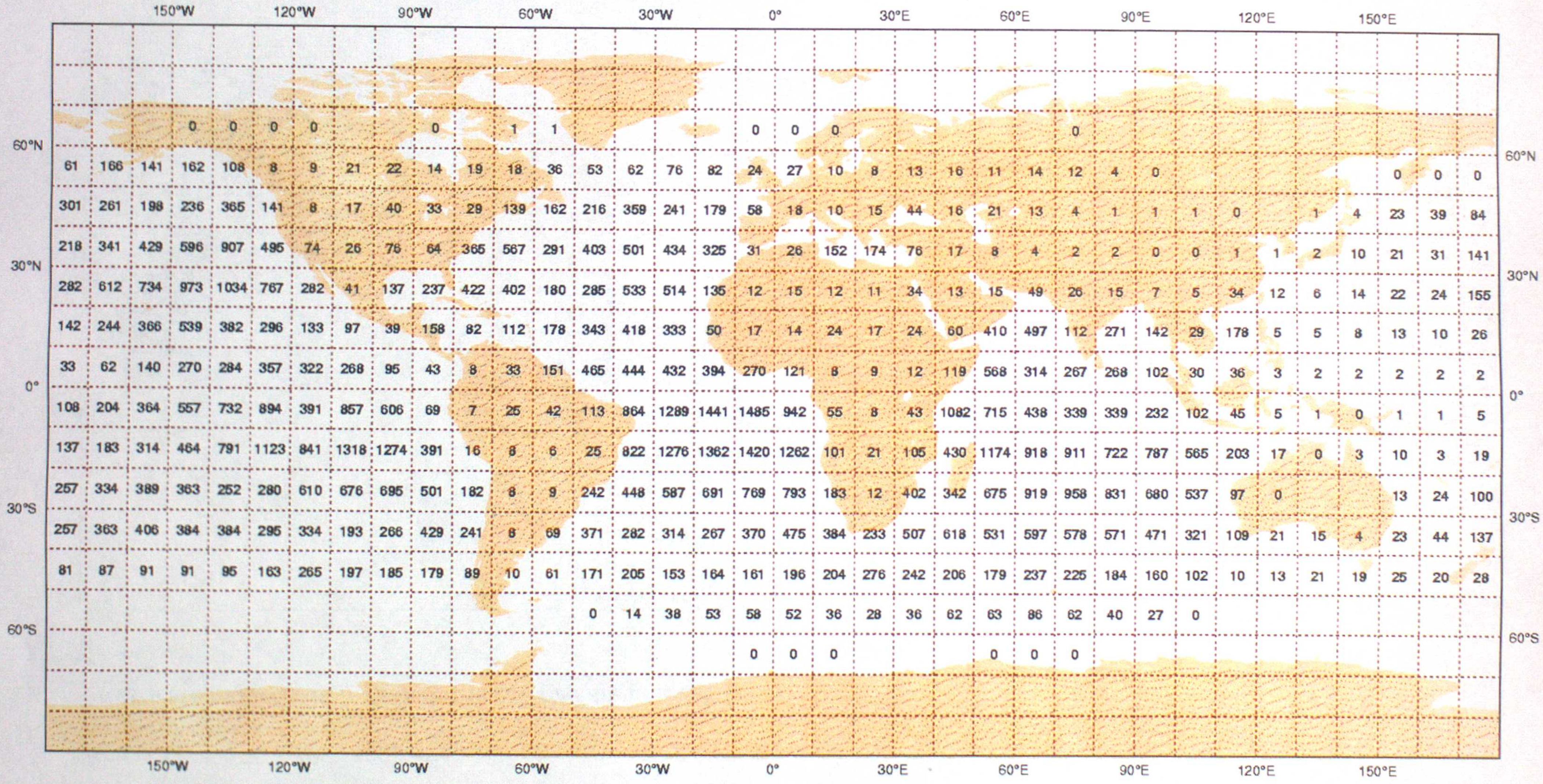
:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS $\geq 10°$, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
WAAH	12	DD	33/ -71	6	13.4	9.2	22.6
33791	12	DD	48/ 33	25	-12.1	3.7	9.9
42182	00	DD	29/ 77	25	17.5	6.0	14.4
42397	12	DD	27/ 88	7	15.6	8.7	8.7
58968	00	DD	25/ 122	23	12.3	7.8	15.0
58968	12	DD	25/ 122	25	13.0	2.1	11.9
78954	12	DD	13/ -59	13	-21.0	9.5	20.1
81405	00	DD	5/ -52	13	-10.7	6.3	25.0

Figure 10. SATOB 701 - 1000 hPa mean daily count. OCTOBER 2004
Global average number of observations in 24 hours = 94687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60°N 30°N 0° 30°S 60°S
0 0 0 0 0 1 1 0 0 0 0
61 166 141 162 108 8 9 21 22 14 19 18 36 53 62 76 82 24 27 10 8 13 16 11 14 12 4 0 0 0 0
301 261 198 236 365 141 8 17 40 33 29 139 162 216 359 241 179 58 18 10 15 44 16 21 13 4 1 1 1 0 1 4 23 39 84
218 341 429 596 907 495 74 26 76 64 365 567 291 403 501 434 325 31 26 152 174 76 17 8 4 2 2 0 0 1 1 2 10 21 31 141
282 612 734 973 1034 767 282 41 137 237 422 402 180 285 533 514 135 12 15 12 11 34 13 15 49 26 15 7 5 34 12 6 14 22 24 155
142 244 366 539 382 296 133 97 39 158 82 112 178 343 418 333 50 17 14 24 17 24 60 410 497 112 271 142 29 178 5 5 8 13 10 26
33 62 140 270 284 357 322 268 95 43 8 33 151 465 444 432 394 270 121 8 9 12 119 568 314 267 268 102 30 36 3 2 2 2 2 2
108 204 364 557 732 894 391 857 606 69 7 25 42 113 864 1289 1441 1485 942 55 8 43 1082 715 438 339 339 232 102 45 5 1 0 1 1 5
137 183 314 464 791 1123 841 1318 1274 391 16 8 6 25 822 1276 1362 1420 1262 101 21 105 430 1174 918 911 722 787 565 203 17 0 3 10 3 19
257 334 389 363 252 280 610 676 695 501 182 8 9 242 448 587 691 769 793 183 12 402 342 675 919 958 831 680 537 97 0 13 24 100
257 363 406 384 384 295 334 193 266 429 241 8 69 371 282 314 267 370 475 384 233 507 618 531 597 578 571 471 321 109 21 15 4 23 44 137
81 87 91 91 95 163 265 197 185 179 89 10 61 171 205 153 164 161 196 204 276 242 206 179 237 225 184 160 102 10 13 21 19 25 20 28
0 14 38 53 58 52 36 28 36 62 63 86 62 40 27 0
0 0 0 0 0 0

Figure 11. SATOB 701 - 1000 hPa vector mean wind. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

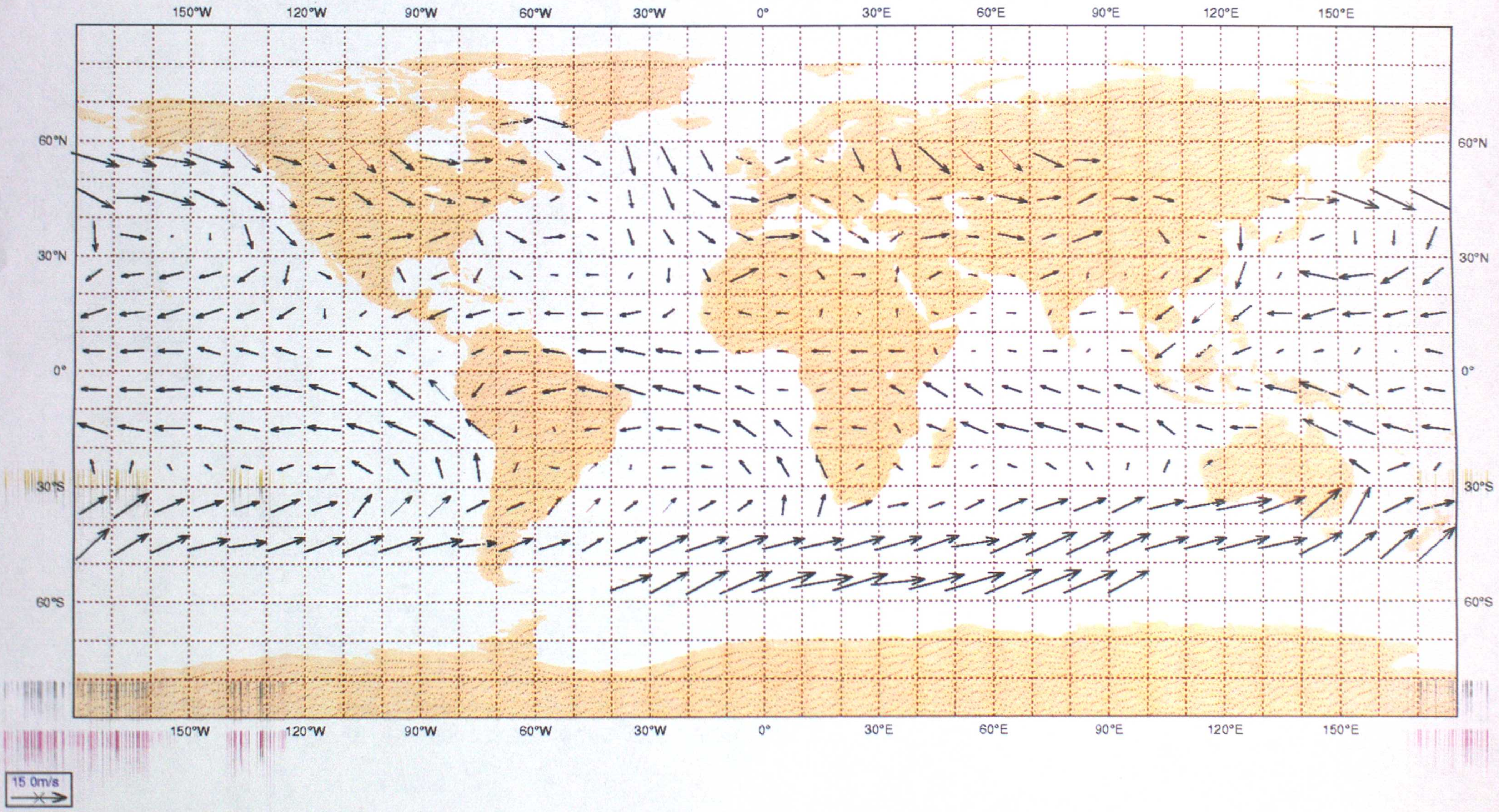

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15 0m/s

Figure 12. SATOB 701 - 1000 hPa mean vector wind differences. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

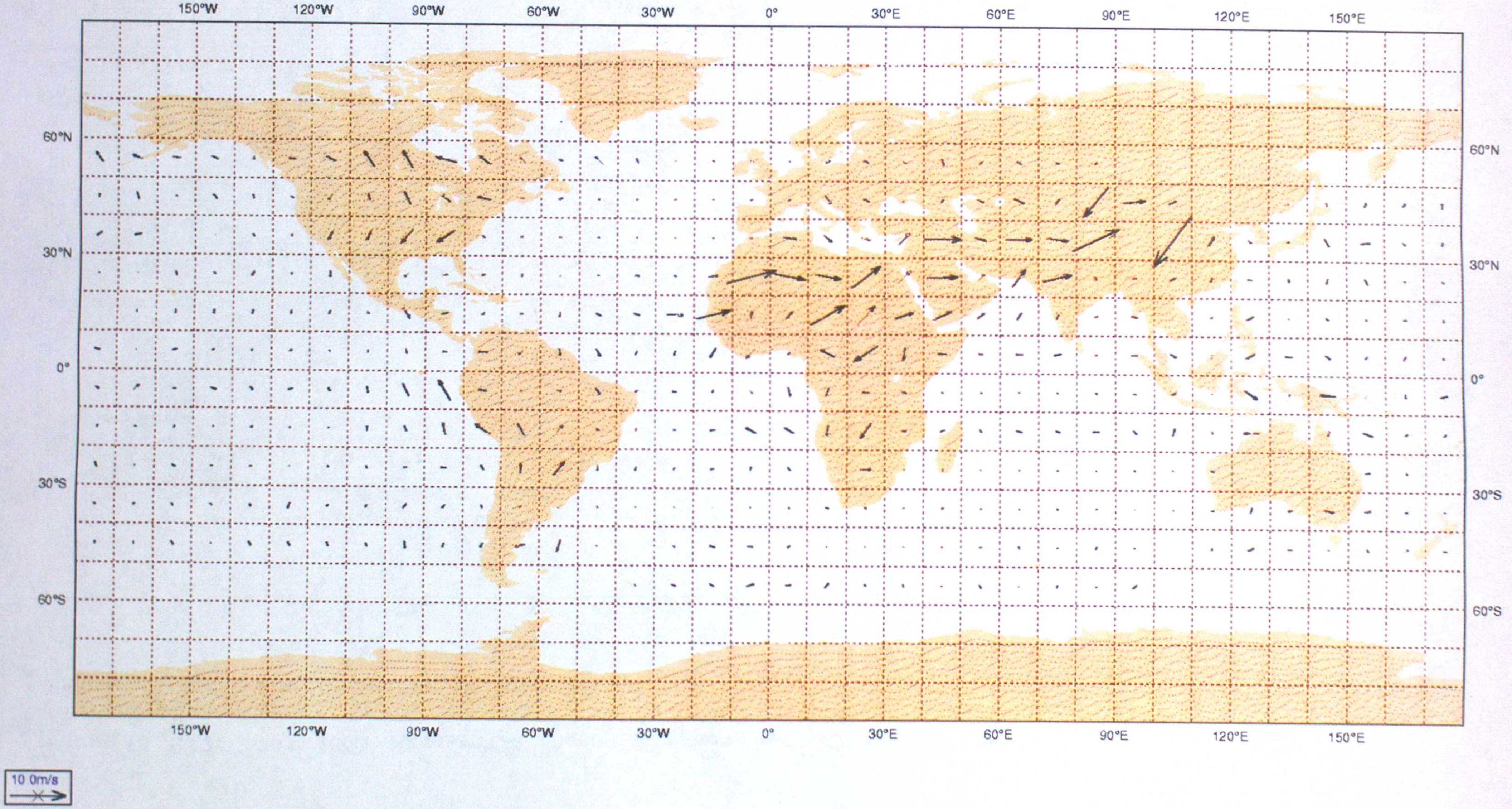

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10 0m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present

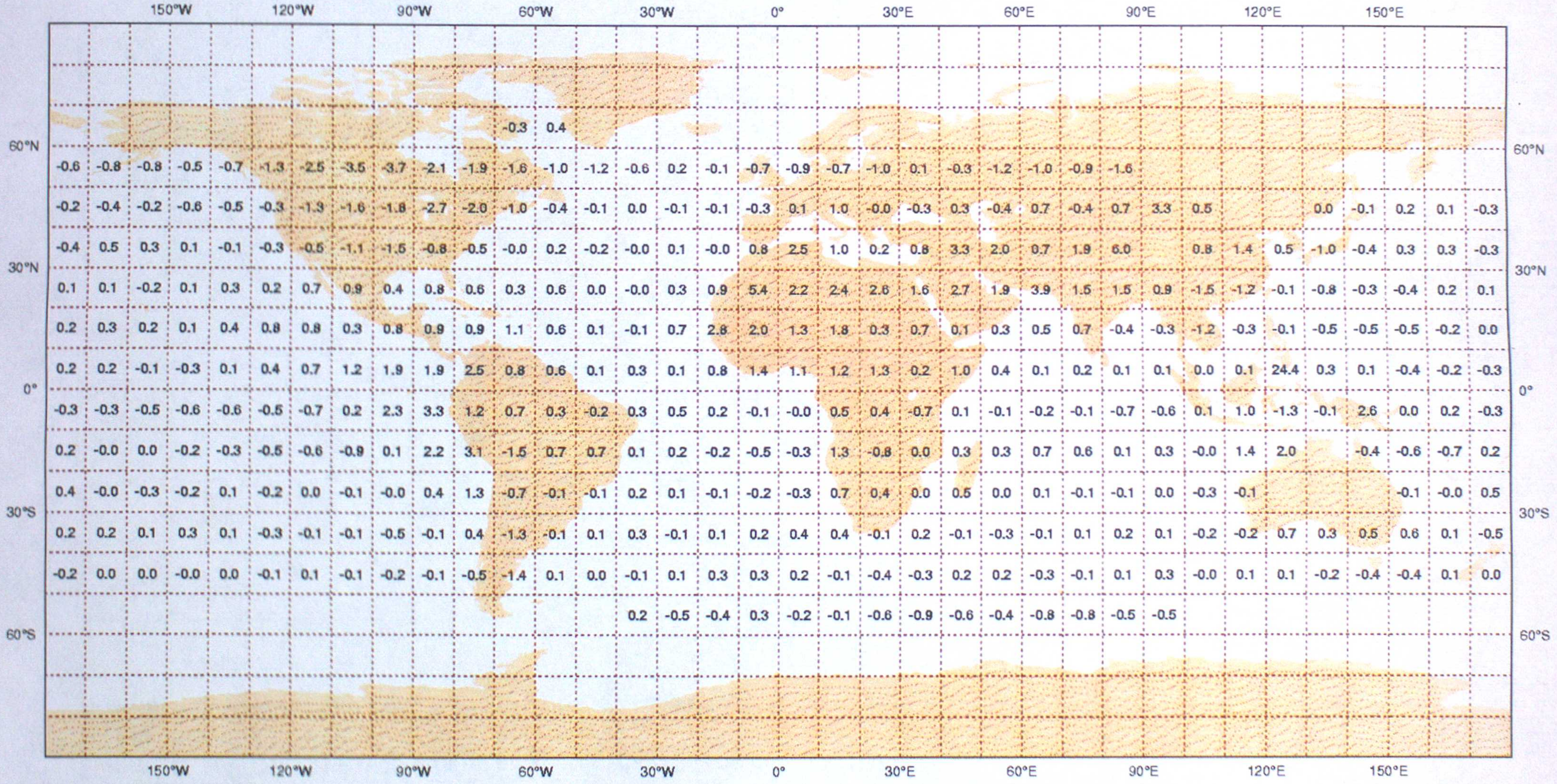
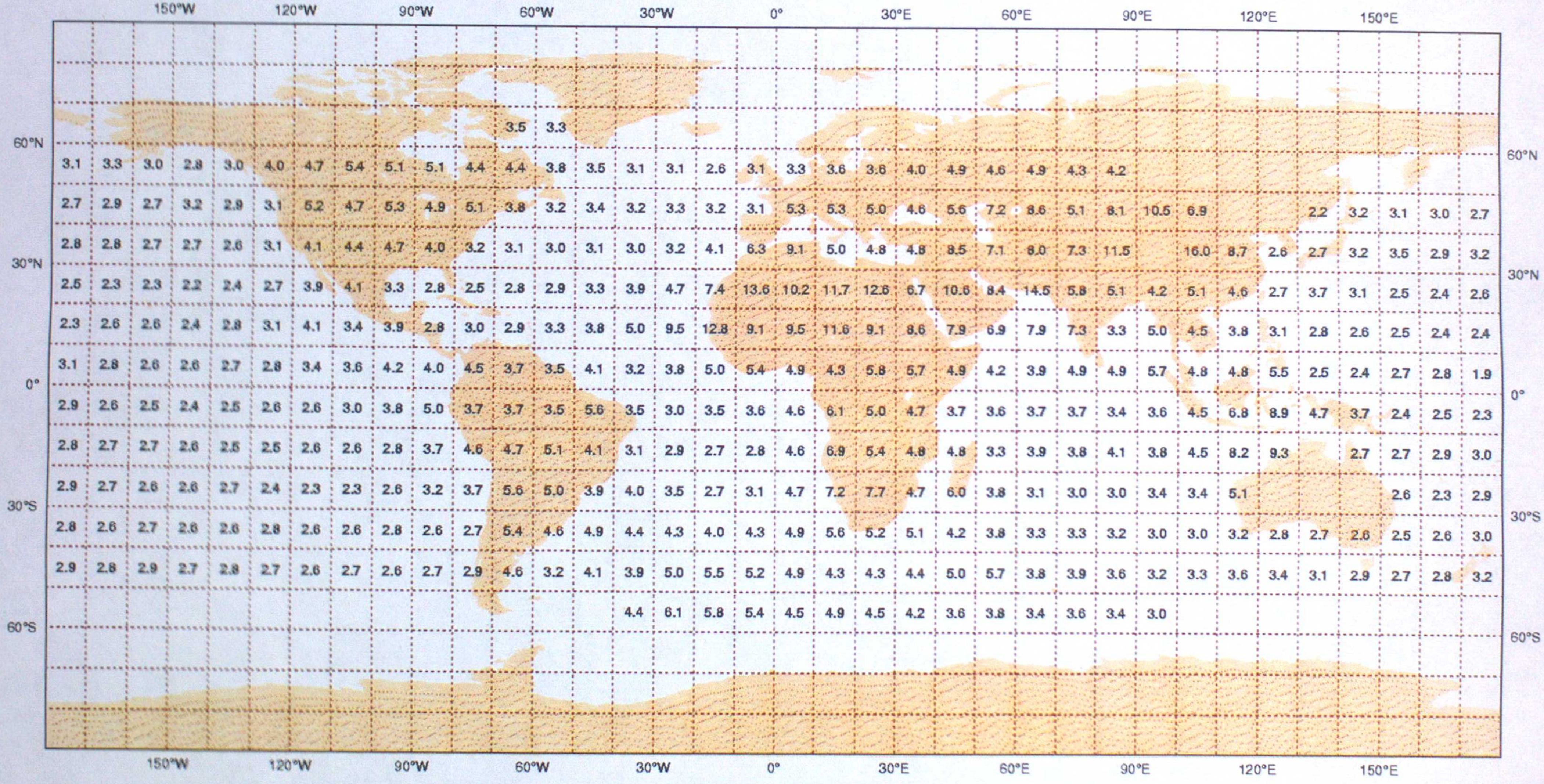

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
-0.3 0.4
-0.6 -0.8 -0.8 -0.5 -0.7 -1.3 -2.5 -3.5 -3.7 -2.1 -1.9 -1.6 -1.0 -1.2 -0.6 0.2 -0.1 -0.7 -0.9 -0.7 -1.0 0.1 -0.3 -1.2 -1.0 -0.9 -1.6
-0.2 -0.4 -0.2 -0.6 -0.5 -0.3 -1.3 -1.6 -1.8 -2.7 -2.0 -1.0 -0.4 -0.1 0.0 -0.1 -0.1 -0.3 0.1 1.0 -0.0 -0.3 0.3 -0.4 0.7 -0.4 0.7 3.3 0.5 0.0 -0.1 0.2 0.1 -0.3
-0.4 0.5 0.3 0.1 -0.1 -0.3 -0.5 -1.1 -1.5 -0.8 -0.5 -0.0 0.2 -0.2 -0.0 0.1 -0.0 0.8 2.5 1.0 0.2 0.8 3.3 2.0 0.7 1.9 6.0 0.8 1.4 0.5 -1.0 -0.4 0.3 0.3 -0.3
0.1 0.1 -0.2 0.1 0.3 0.2 0.7 0.9 0.4 0.8 0.6 0.3 0.6 0.0 -0.0 0.3 0.9 5.4 2.2 2.4 2.6 1.6 2.7 1.9 3.9 1.5 1.5 0.9 -1.5 -1.2 -0.1 -0.8 -0.3 -0.4 0.2 0.1
0.2 0.3 0.2 0.1 0.4 0.8 0.8 0.3 0.8 0.9 0.9 1.1 0.6 0.1 -0.1 0.7 2.8 2.0 1.3 1.8 0.3 0.7 0.1 0.3 0.5 0.7 -0.4 -0.3 -1.2 -0.3 -0.1 -0.5 -0.5 -0.5 -0.2 0.0
0.2 0.2 -0.1 -0.3 0.1 0.4 0.7 1.2 1.9 1.9 2.5 0.8 0.6 0.1 0.3 0.1 0.8 1.4 1.1 1.2 1.3 0.2 1.0 0.4 0.1 0.2 0.1 0.1 0.0 0.1 24.4 0.3 0.1 -0.4 -0.2 -0.3
-0.3 -0.3 -0.5 -0.6 -0.6 -0.5 -0.7 0.2 2.3 3.3 1.2 0.7 0.3 -0.2 0.3 0.5 0.2 -0.1 -0.0 0.5 0.4 -0.7 0.1 -0.1 -0.2 -0.1 -0.7 -0.6 0.1 1.0 -1.3 -0.1 2.6 0.0 0.2 -0.3
0.2 -0.0 0.0 -0.2 -0.3 -0.5 -0.6 -0.9 0.1 2.2 3.1 -1.5 0.7 0.7 0.1 0.2 -0.2 -0.5 -0.3 1.3 -0.8 0.0 0.3 0.3 0.7 0.6 0.1 0.3 -0.0 1.4 2.0 -0.4 -0.6 -0.7 0.2
0.4 -0.0 -0.3 -0.2 0.1 -0.2 0.0 -0.1 -0.0 0.4 1.3 -0.7 -0.1 -0.1 0.2 0.1 -0.1 -0.2 -0.3 0.7 0.4 0.0 0.5 0.0 0.1 -0.1 -0.1 0.0 -0.3 -0.1 -0.1 -0.0 0.5
0.2 0.2 0.1 0.3 0.1 -0.3 -0.1 -0.1 -0.5 -0.1 0.4 -1.3 -0.1 0.1 0.3 -0.1 0.1 0.2 0.4 0.4 -0.1 0.2 -0.1 -0.3 -0.1 0.1 0.2 0.1 -0.2 -0.2 0.7 0.3 0.5 0.6 0.1 -0.5
-0.2 0.0 0.0 -0.0 0.0 -0.1 0.1 -0.1 -0.2 -0.1 -0.5 -1.4 0.1 0.0 -0.1 0.1 0.3 0.3 0.2 -0.1 -0.4 -0.3 0.2 0.2 -0.3 -0.1 0.1 0.3 -0.0 0.1 0.1 -0.2 -0.4 -0.4 0.1 0.0
0.2 -0.5 -0.4 0.3 -0.2 -0.1 -0.6 -0.9 -0.6 -0.4 -0.8 -0.8 -0.5 -0.5

Figure 14. SATOB 701 - 1000 hPa mean RMS O-B vector differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present


150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
3.5 3.3
3.1 3.3 3.0 2.8 3.0 4.0 4.7 5.4 5.1 5.1 4.4 4.4 3.8 3.5 3.1 3.1 2.6 3.1 3.3 3.6 3.6 4.0 4.9 4.6 4.9 4.3 4.2
2.7 2.9 2.7 3.2 2.9 3.1 5.2 4.7 5.3 4.9 5.1 3.8 3.2 3.4 3.2 3.3 3.2 3.1 5.3 5.3 5.0 4.6 5.6 7.2 8.6 5.1 8.1 10.5 6.9 2.2 3.2 3.1 3.0 2.7
2.8 2.8 2.7 2.7 2.6 3.1 4.1 4.4 4.7 4.0 3.2 3.1 3.0 3.1 3.0 3.2 4.1 6.3 9.1 5.0 4.8 4.8 8.5 7.1 8.0 7.3 11.5 16.0 8.7 2.6 2.7 3.2 3.5 2.9 3.2
2.5 2.3 2.3 2.2 2.4 2.7 3.9 4.1 3.3 2.8 2.5 2.8 2.9 3.3 3.9 4.7 7.4 13.6 10.2 11.7 12.6 6.7 10.6 8.4 14.5 5.8 5.1 4.2 5.1 4.6 2.7 3.7 3.1 2.5 2.4 2.6
2.3 2.6 2.6 2.4 2.8 3.1 4.1 3.4 3.9 2.8 3.0 2.9 3.3 3.8 5.0 9.5 12.8 9.1 9.5 11.6 9.1 8.6 7.9 6.9 7.9 7.3 3.3 5.0 4.5 3.8 3.1 2.8 2.6 2.5 2.4 2.4
3.1 2.8 2.6 2.6 2.7 2.8 3.4 3.6 4.2 4.0 4.5 3.7 3.5 4.1 3.2 3.8 5.0 5.4 4.9 4.3 5.8 5.7 4.9 4.2 3.9 4.9 4.9 5.7 4.8 4.8 5.5 2.5 2.4 2.7 2.8 1.9
2.9 2.6 2.5 2.4 2.5 2.6 2.6 3.0 3.8 5.0 3.7 3.7 3.5 5.6 3.5 3.0 3.5 3.6 4.6 6.1 5.0 4.7 3.7 3.6 3.7 3.7 3.4 3.6 4.5 6.8 8.9 4.7 3.7 2.4 2.5 2.3
2.8 2.7 2.7 2.6 2.5 2.5 2.6 2.6 2.8 3.7 4.6 4.7 5.1 4.1 3.1 2.9 2.7 2.8 4.6 6.9 5.4 4.8 4.8 3.3 3.9 3.8 4.1 3.8 4.5 8.2 9.3 2.7 2.7 2.9 3.0
2.9 2.7 2.6 2.6 2.7 2.4 2.3 2.3 2.6 3.2 3.7 5.6 5.0 3.9 4.0 3.5 2.7 3.1 4.7 7.2 7.7 4.7 6.0 3.8 3.1 3.0 3.0 3.4 3.4 5.1 2.6 2.3 2.9
2.8 2.6 2.7 2.6 2.6 2.8 2.6 2.6 2.8 2.6 2.7 5.4 4.6 4.9 4.4 4.3 4.0 4.3 4.9 5.6 5.2 5.1 4.2 3.8 3.3 3.3 3.2 3.0 3.0 3.2 2.8 2.7 2.6 2.5 2.6 3.0
2.9 2.8 2.9 2.7 2.8 2.7 2.6 2.7 2.6 2.7 2.9 4.6 3.2 4.1 3.9 5.0 5.5 5.2 4.9 4.3 4.3 4.4 5.0 5.7 3.8 3.9 3.6 3.2 3.3 3.6 3.4 3.1 2.9 2.7 2.8 3.2
4.4 6.1 5.8 5.4 4.5 4.9 4.5 4.2 3.6 3.8 3.4 3.6 3.4 3.0

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: EXETER

MONTH: Oct 2004

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES-9, GOES-10, GOES-12, METEOSAT-5, METEOSAT-7
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

Figure 15. SATOB 401 - 700 hPa mean daily count. OCTOBER 2004
Global average number of observations in 24 hours = 21256

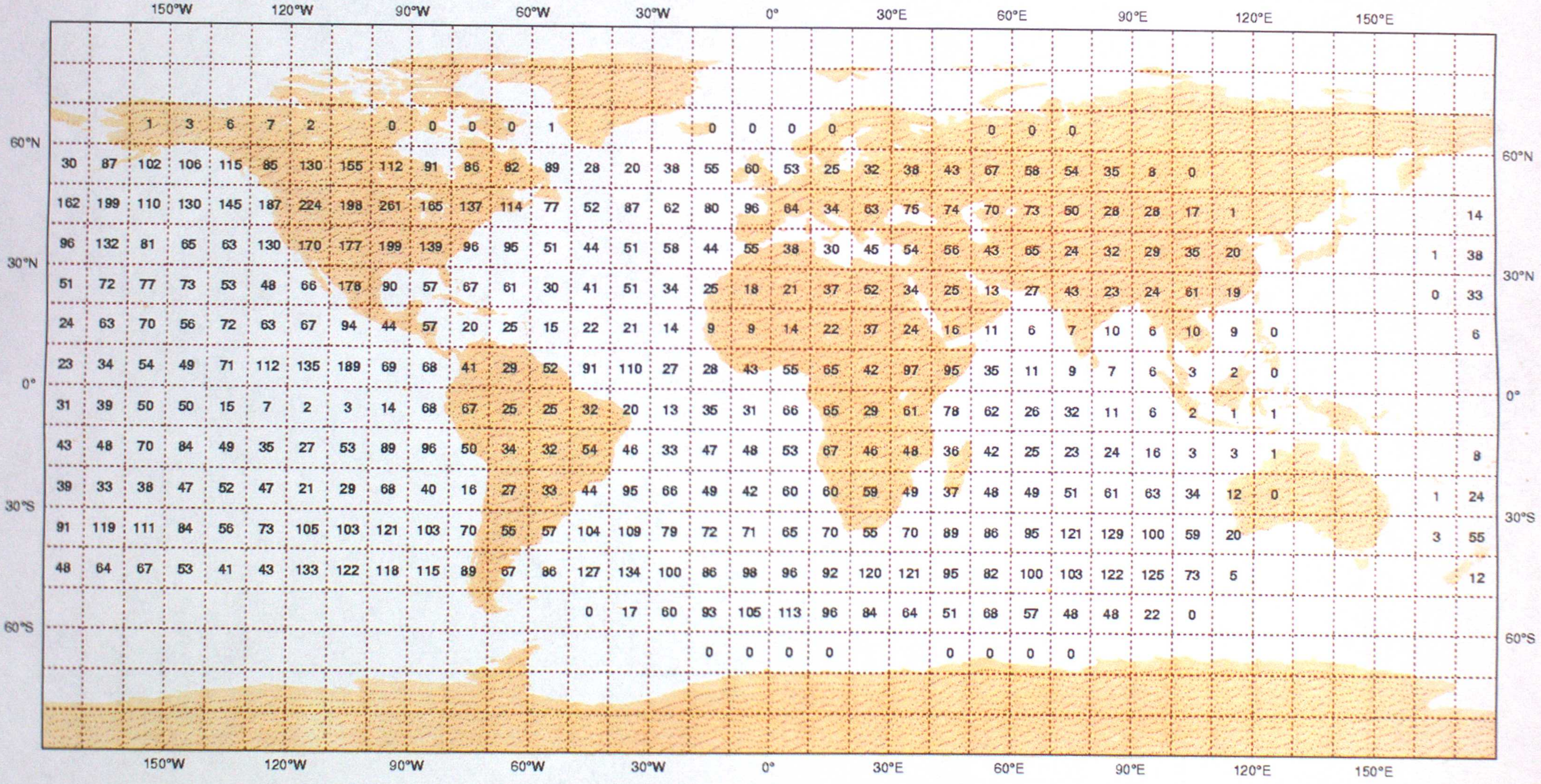

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1 3 6 7 2 0 0 0 0 1 0 0 0 0 0 0 0
30 87 102 106 115 85 130 155 112 91 86 82 89 28 20 38 55 60 53 25 32 38 43 67 58 54 35 8 0
162 199 110 130 145 187 224 198 261 165 137 114 77 52 87 62 80 96 64 34 63 75 74 70 73 50 28 28 17 1 14
96 132 81 65 63 130 170 177 199 139 96 95 51 44 51 58 44 55 38 30 45 54 56 43 65 24 32 29 35 20 1 38
51 72 77 73 53 48 66 178 90 57 67 61 30 41 51 34 25 18 21 37 52 34 25 13 27 43 23 24 61 19 0 33
24 63 70 56 72 63 67 94 44 57 20 25 15 22 21 14 9 9 14 22 37 24 16 11 6 7 10 6 10 9 0 6
23 34 54 49 71 112 135 189 69 68 41 29 52 91 110 27 28 43 55 65 42 97 95 35 11 9 7 6 3 2 0
31 39 50 50 15 7 2 3 14 68 67 25 25 32 20 13 35 31 66 65 29 61 78 62 26 32 11 6 2 1 1
43 48 70 84 49 35 27 53 89 96 50 34 32 54 46 33 47 48 53 67 46 48 36 42 25 23 24 16 3 3 1 8
39 33 38 47 52 47 21 29 68 40 16 27 33 44 95 66 49 42 60 60 59 49 37 48 49 51 61 63 34 12 0 1 24
91 119 111 84 56 73 105 103 121 103 70 55 57 104 109 79 72 71 65 70 55 70 89 86 95 121 129 100 59 20 3 55
48 64 67 53 41 43 133 122 118 115 89 67 86 127 134 100 86 98 96 92 120 121 95 82 100 103 122 125 73 5 12
0 17 60 93 105 113 96 84 64 51 68 57 48 48 22 0
0 0 0 0 0 0 0 0
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 16. SATOB 401 - 700 hPa vector mean wind. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

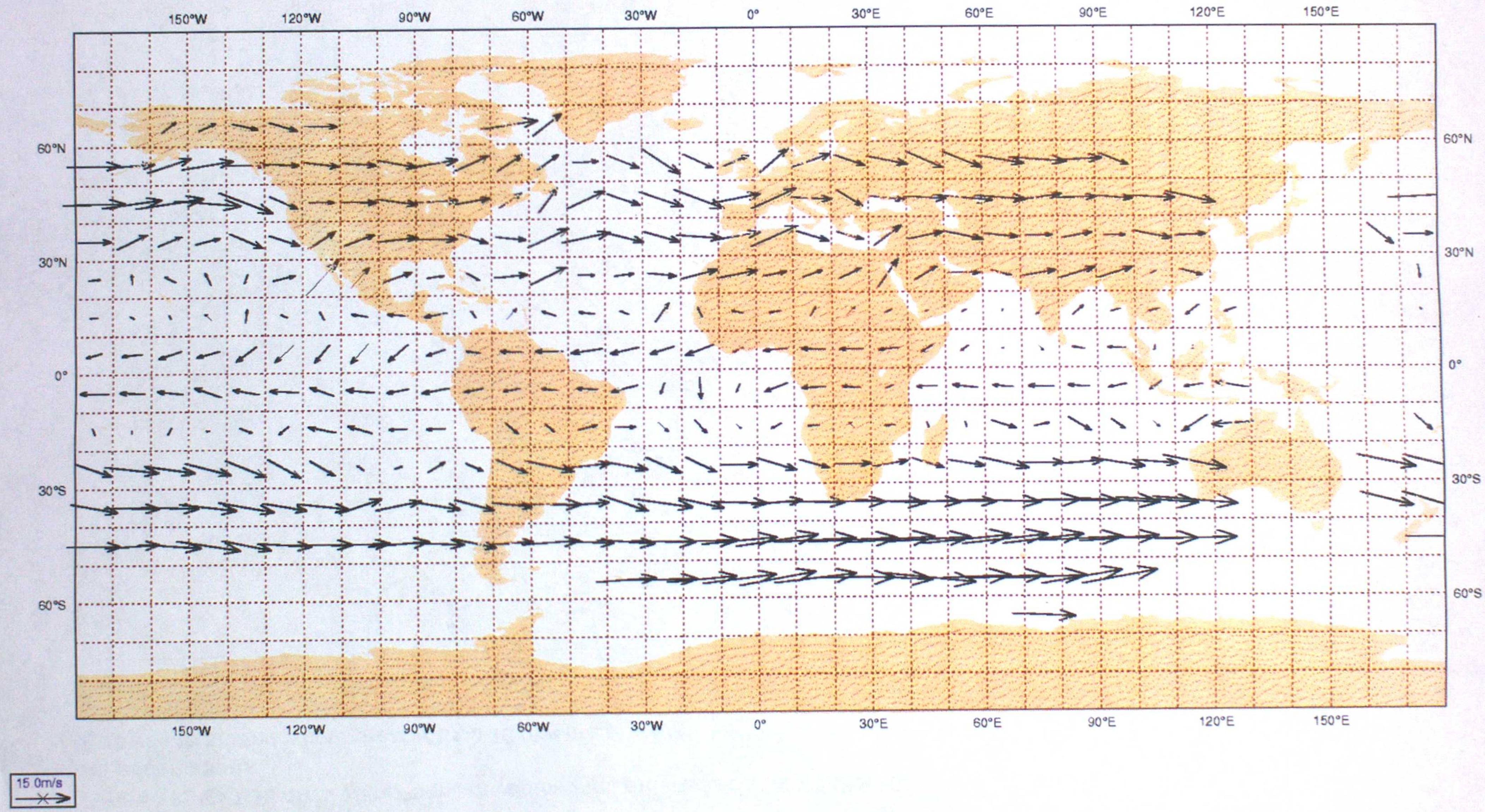

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 17. SATOB 401 - 700 hPa mean vector wind differences. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

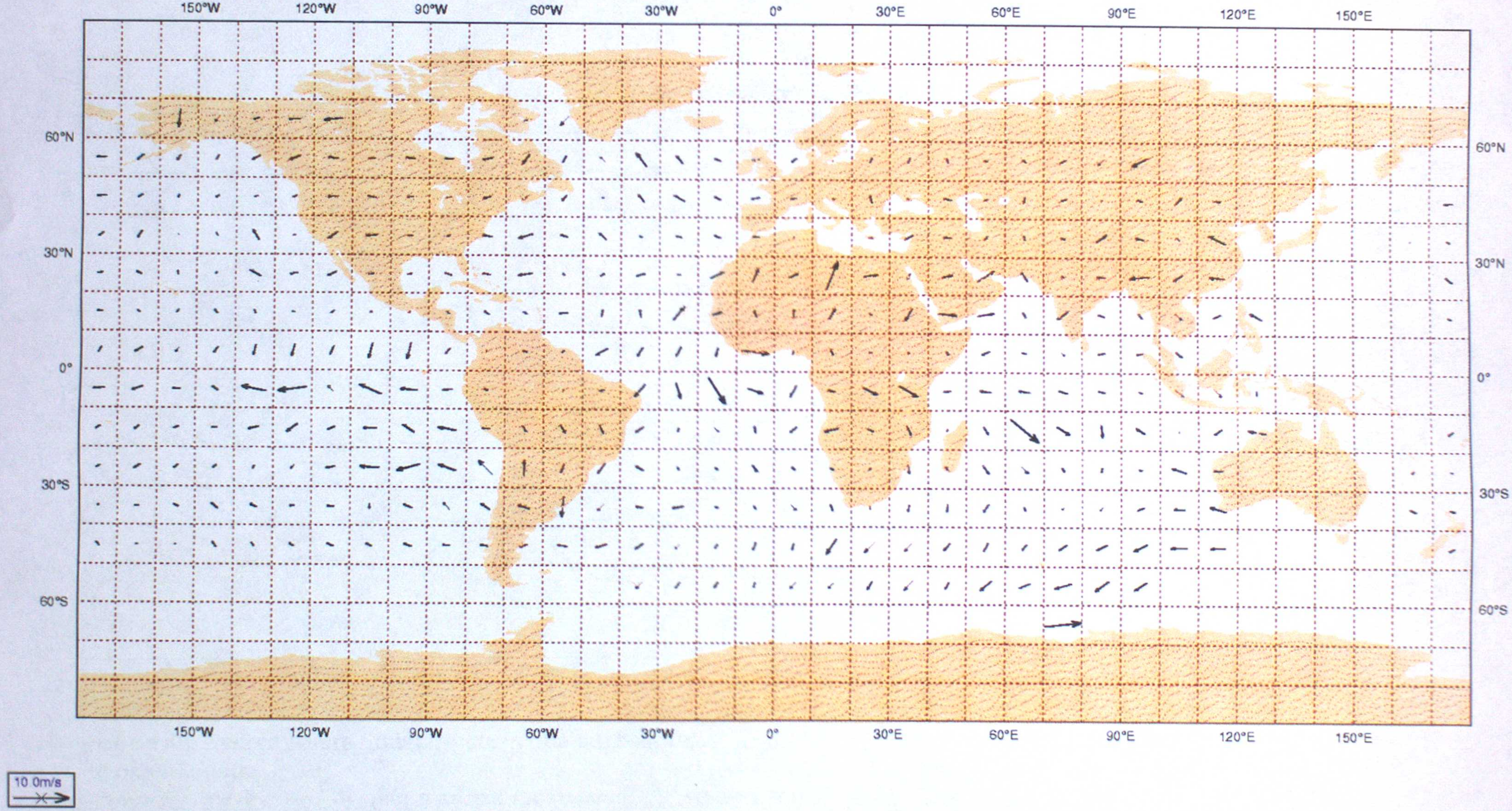
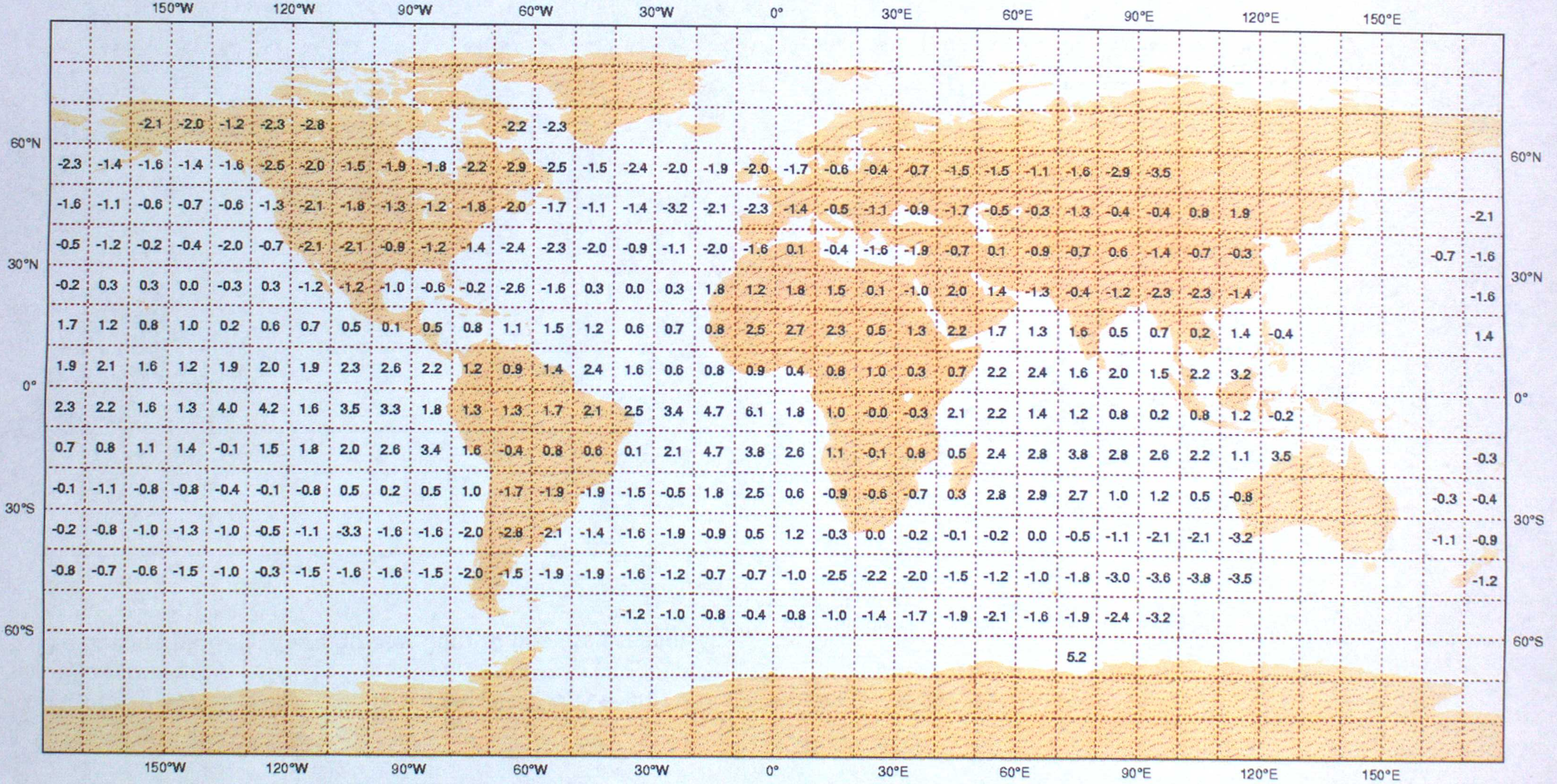

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present



		-2.1	-2.0	-1.2	-2.3	-2.8					-2.2	-2.3																							
-2.3	-1.4	-1.6	-1.4	-1.6	-2.5	-2.0	-1.5	-1.9	-1.8	-2.2	-2.9	-2.5	-1.5	-2.4	-2.0	-1.9	-2.0	-1.7	-0.6	-0.4	-0.7	-1.5	-1.5	-1.1	-1.6	-2.9	-3.5								
-1.6	-1.1	-0.6	-0.7	-0.6	-1.3	-2.1	-1.8	-1.3	-1.2	-1.8	-2.0	-1.7	-1.1	-1.4	-3.2	-2.1	-2.3	-1.4	-0.5	-1.1	-0.9	-1.7	-0.5	-0.3	-1.3	-0.4	-0.4	0.8	1.9						-2.1
-0.5	-1.2	-0.2	-0.4	-2.0	-0.7	-2.1	-2.1	-0.9	-1.2	-1.4	-2.4	-2.3	-2.0	-0.9	-1.1	-2.0	-1.6	0.1	-0.4	-1.6	-1.9	-0.7	0.1	-0.9	-0.7	0.6	-1.4	-0.7	-0.3					-0.7	-1.6
-0.2	0.3	0.3	0.0	-0.3	0.3	-1.2	-1.2	-1.0	-0.6	-0.2	-2.6	-1.6	0.3	0.0	0.3	1.8	1.2	1.8	1.5	0.1	-1.0	2.0	1.4	-1.3	-0.4	-1.2	-2.3	-2.3	-1.4						-1.6
1.7	1.2	0.8	1.0	0.2	0.6	0.7	0.5	0.1	0.5	0.8	1.1	1.5	1.2	0.6	0.7	0.8	2.5	2.7	2.3	0.5	1.3	2.2	1.7	1.3	1.6	0.5	0.7	0.2	1.4	-0.4					1.4
1.9	2.1	1.6	1.2	1.9	2.0	1.9	2.3	2.6	2.2	1.2	0.9	1.4	2.4	1.6	0.6	0.8	0.9	0.4	0.8	1.0	0.3	0.7	2.2	2.4	1.6	2.0	1.5	2.2	3.2						
2.3	2.2	1.6	1.3	4.0	4.2	1.6	3.5	3.3	1.8	1.3	1.3	1.7	2.1	2.5	3.4	4.7	6.1	1.8	1.0	-0.0	-0.3	2.1	2.2	1.4	1.2	0.8	0.2	0.8	1.2	-0.2					
0.7	0.8	1.1	1.4	-0.1	1.5	1.8	2.0	2.6	3.4	1.6	-0.4	0.8	0.6	0.1	2.1	4.7	3.8	2.6	1.1	-0.1	0.8	0.5	2.4	2.8	3.8	2.8	2.6	2.2	1.1	3.5					-0.3
-0.1	-1.1	-0.8	-0.8	-0.4	-0.1	-0.8	0.5	0.2	0.5	1.0	-1.7	-1.9	-1.9	-1.5	-0.5	1.8	2.5	0.6	-0.9	-0.6	-0.7	0.3	2.8	2.9	2.7	1.0	1.2	0.5	-0.8					-0.3	-0.4
-0.2	-0.8	-1.0	-1.3	-1.0	-0.5	-1.1	-3.3	-1.6	-1.6	-2.0	-2.8	-2.1	-1.4	-1.6	-1.9	-0.9	0.5	1.2	-0.3	0.0	-0.2	-0.1	-0.2	0.0	-0.5	-1.1	-2.1	-2.1	-3.2					-1.1	-0.9
-0.8	-0.7	-0.6	-1.5	-1.0	-0.3	-1.5	-1.6	-1.6	-1.5	-2.0	-1.5	-1.9	-1.9	-1.6	-1.2	-0.7	-0.7	-1.0	-2.5	-2.2	-2.0	-1.5	-1.2	-1.0	-1.8	-3.0	-3.6	-3.8	-3.5						-1.2
														-1.2	-1.0	-0.8	-0.4	-0.8	-1.0	-1.4	-1.7	-1.9	-2.1	-1.6	-1.9	-2.4	-3.2								
																									5.2										

Figure 19. SATOB 401 - 700 hPa mean RMS O-B vector differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present

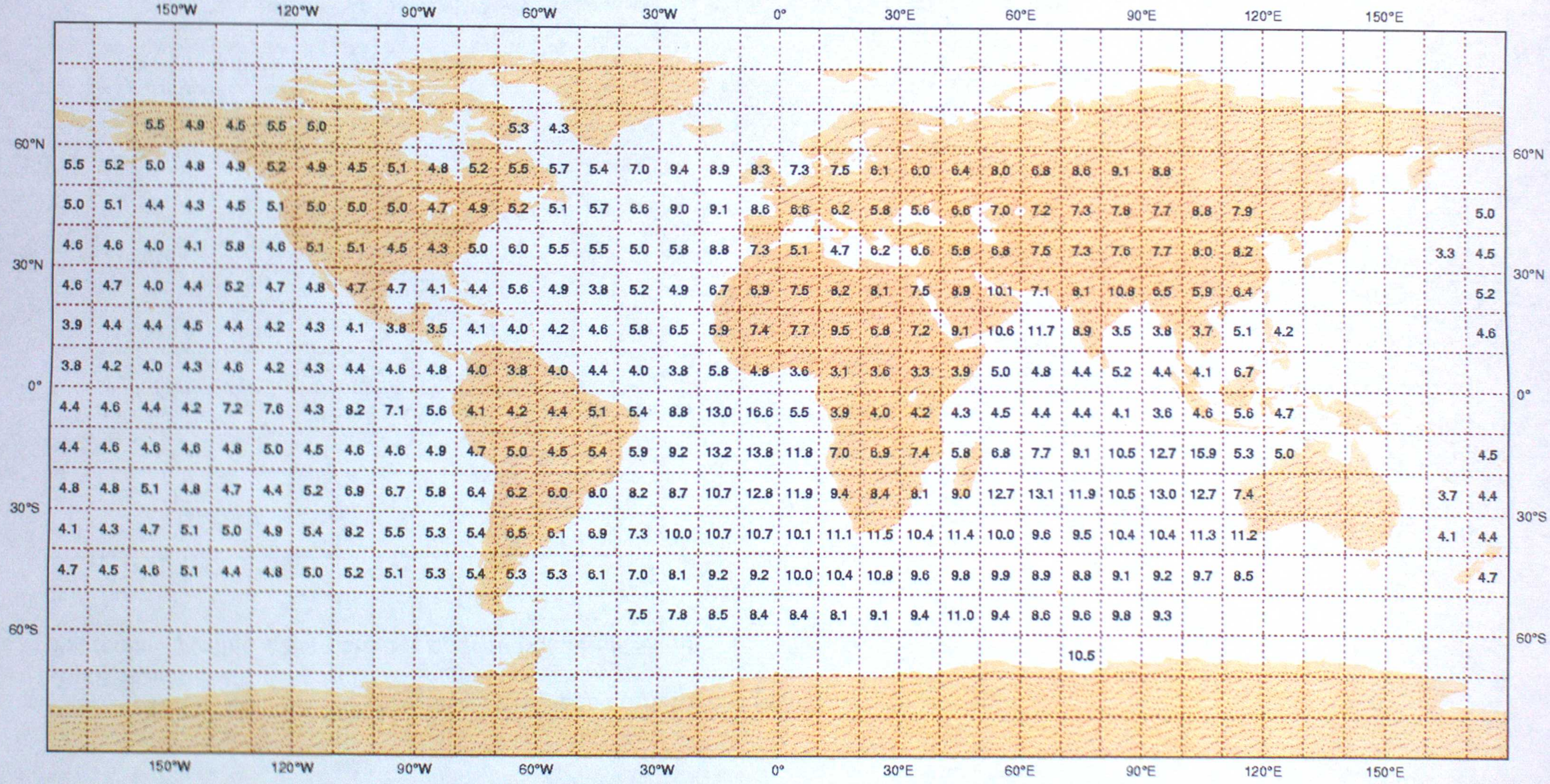
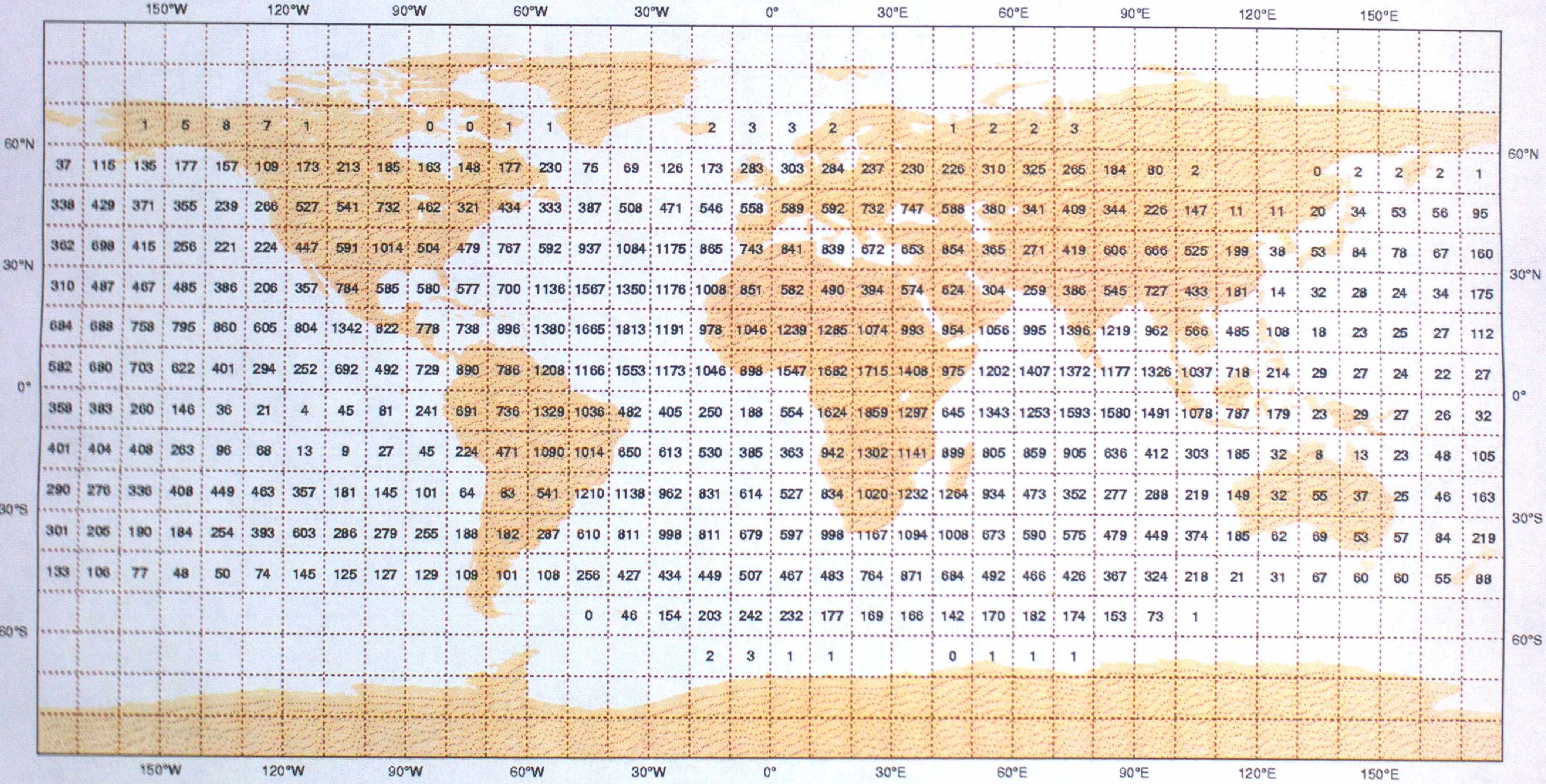

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
5.5 4.9 4.5 5.5 5.0 5.3 4.3
5.5 5.2 5.0 4.8 4.9 5.2 4.9 4.5 5.1 4.8 5.2 5.5 5.7 5.4 7.0 9.4 8.9 8.3 7.3 7.5 6.1 6.0 6.4 8.0 6.8 8.6 9.1 8.8
5.0 5.1 4.4 4.3 4.5 5.1 5.0 5.0 5.0 4.7 4.9 5.2 5.1 5.7 6.6 9.0 9.1 8.6 6.6 6.2 5.8 5.6 6.6 7.0 7.2 7.3 7.8 7.7 8.8 7.9 5.0
4.6 4.6 4.0 4.1 5.8 4.6 5.1 5.1 4.5 4.3 5.0 6.0 5.5 5.5 5.0 5.8 8.8 7.3 5.1 4.7 6.2 6.6 5.8 6.8 7.5 7.3 7.6 7.7 8.0 8.2 3.3 4.5
4.6 4.7 4.0 4.4 5.2 4.7 4.8 4.7 4.7 4.1 4.4 5.6 4.9 3.8 5.2 4.9 6.7 6.9 7.5 8.2 8.1 7.5 8.9 10.1 7.1 8.1 10.8 6.5 5.9 6.4 5.2
3.9 4.4 4.4 4.5 4.4 4.2 4.3 4.1 3.8 3.5 4.1 4.0 4.2 4.6 5.8 6.5 5.9 7.4 7.7 9.5 6.8 7.2 9.1 10.6 11.7 8.9 3.5 3.8 3.7 5.1 4.2 4.6
3.8 4.2 4.0 4.3 4.6 4.2 4.3 4.4 4.6 4.8 4.0 3.8 4.0 4.4 4.0 3.8 5.8 4.8 3.6 3.1 3.6 3.3 3.9 5.0 4.8 4.4 5.2 4.4 4.1 6.7
4.4 4.6 4.4 4.2 7.2 7.6 4.3 8.2 7.1 5.6 4.1 4.2 4.4 5.1 5.4 8.8 13.0 16.6 5.5 3.9 4.0 4.2 4.3 4.5 4.4 4.4 4.1 3.6 4.6 5.6 4.7
4.4 4.6 4.6 4.6 4.8 5.0 4.5 4.6 4.6 4.9 4.7 5.0 4.5 5.4 5.9 9.2 13.2 13.8 11.8 7.0 6.9 7.4 5.8 6.8 7.7 9.1 10.5 12.7 15.9 5.3 5.0 4.5
4.8 4.8 5.1 4.8 4.7 4.4 5.2 6.9 6.7 5.8 6.4 6.2 6.0 8.0 8.2 8.7 10.7 12.8 11.9 9.4 8.4 8.1 9.0 12.7 13.1 11.9 10.5 13.0 12.7 7.4 3.7 4.4
4.1 4.3 4.7 5.1 5.0 4.9 5.4 8.2 5.5 5.3 5.4 6.5 6.1 6.9 7.3 10.0 10.7 10.7 10.1 11.1 11.5 10.4 11.4 10.0 9.6 9.5 10.4 10.4 11.3 11.2 4.1 4.4
4.7 4.5 4.6 5.1 4.4 4.8 5.0 5.2 5.1 5.3 5.4 5.3 5.3 6.1 7.0 8.1 9.2 9.2 10.0 10.4 10.8 9.6 9.8 9.9 8.9 8.8 9.1 9.2 9.7 8.5 4.7
7.5 7.8 8.5 8.4 8.4 8.1 9.1 9.4 11.0 9.4 8.6 9.6 9.8 9.3
10.5

Figure 20. SATOB 101 - 400 hPa mean daily count. OCTOBER 2004
Global average number of observations in 24 hours = 198543



		1	5	8	7	1			0	0	1	1				2	3	3	2			1	2	2	3										
37	115	135	177	157	109	173	213	185	163	148	177	230	75	69	126	173	283	303	284	237	230	226	310	325	265	184	80	2			0	2	2	2	1
338	429	371	355	239	266	527	541	732	462	321	434	333	387	508	471	546	558	589	592	732	747	588	380	341	409	344	226	147	11	11	20	34	53	56	95
362	698	415	256	221	224	447	591	1014	504	479	767	592	937	1084	1175	865	743	841	839	672	653	854	365	271	419	606	666	525	199	38	53	84	78	67	160
310	487	467	485	386	206	357	784	585	580	577	700	1136	1567	1350	1176	1008	851	582	490	394	574	624	304	259	386	545	727	433	181	14	32	28	24	34	175
684	688	758	795	860	605	804	1342	822	778	738	896	1380	1665	1813	1191	978	1046	1239	1285	1074	993	954	1056	995	1396	1219	962	566	485	108	18	23	25	27	112
582	680	703	622	401	294	252	692	492	729	890	786	1208	1166	1553	1173	1046	898	1547	1682	1715	1408	975	1202	1407	1372	1177	1326	1037	718	214	29	27	24	22	27
358	383	260	146	36	21	4	45	81	241	691	736	1329	1036	482	405	250	188	554	1624	1859	1297	645	1343	1253	1593	1580	1491	1078	787	179	23	29	27	26	32
401	404	408	263	96	68	13	9	27	45	224	471	1090	1014	650	613	530	385	363	942	1302	1141	899	805	859	905	636	412	303	185	32	8	13	23	48	105
290	276	336	408	449	463	357	181	145	101	64	83	541	1210	1138	962	831	614	527	834	1020	1232	1264	934	473	352	277	288	219	149	32	55	37	25	46	163
301	205	190	184	254	393	603	286	279	255	188	182	287	610	811	998	811	679	597	998	1167	1094	1008	673	590	575	479	449	374	185	62	69	53	57	84	219
133	106	77	48	50	74	145	125	127	129	109	101	108	256	427	434	449	507	467	483	764	871	684	492	466	426	367	324	218	21	31	67	60	60	55	88
													0	46	154	203	242	232	177	169	166	142	170	182	174	153	73	1							
																2	3	1	1			0	1	1	1										

Figure 21. SATOB 101 - 400 hPa vector mean wind. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

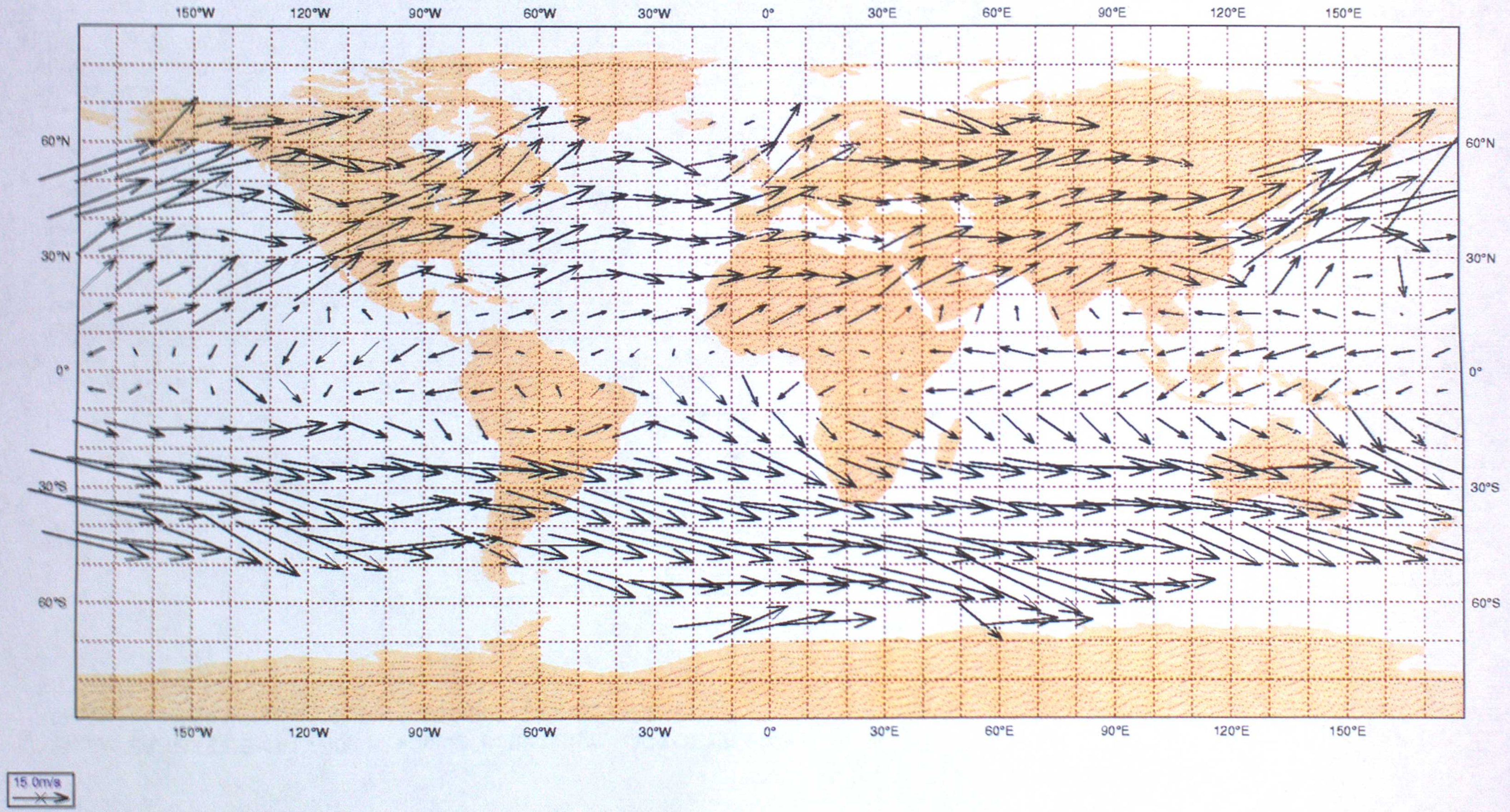

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 22. SATOB 101 - 400 hPa mean vector wind differences. OCTOBER 2004
All observations
Arrows are plotted where greater than 10 obs are present

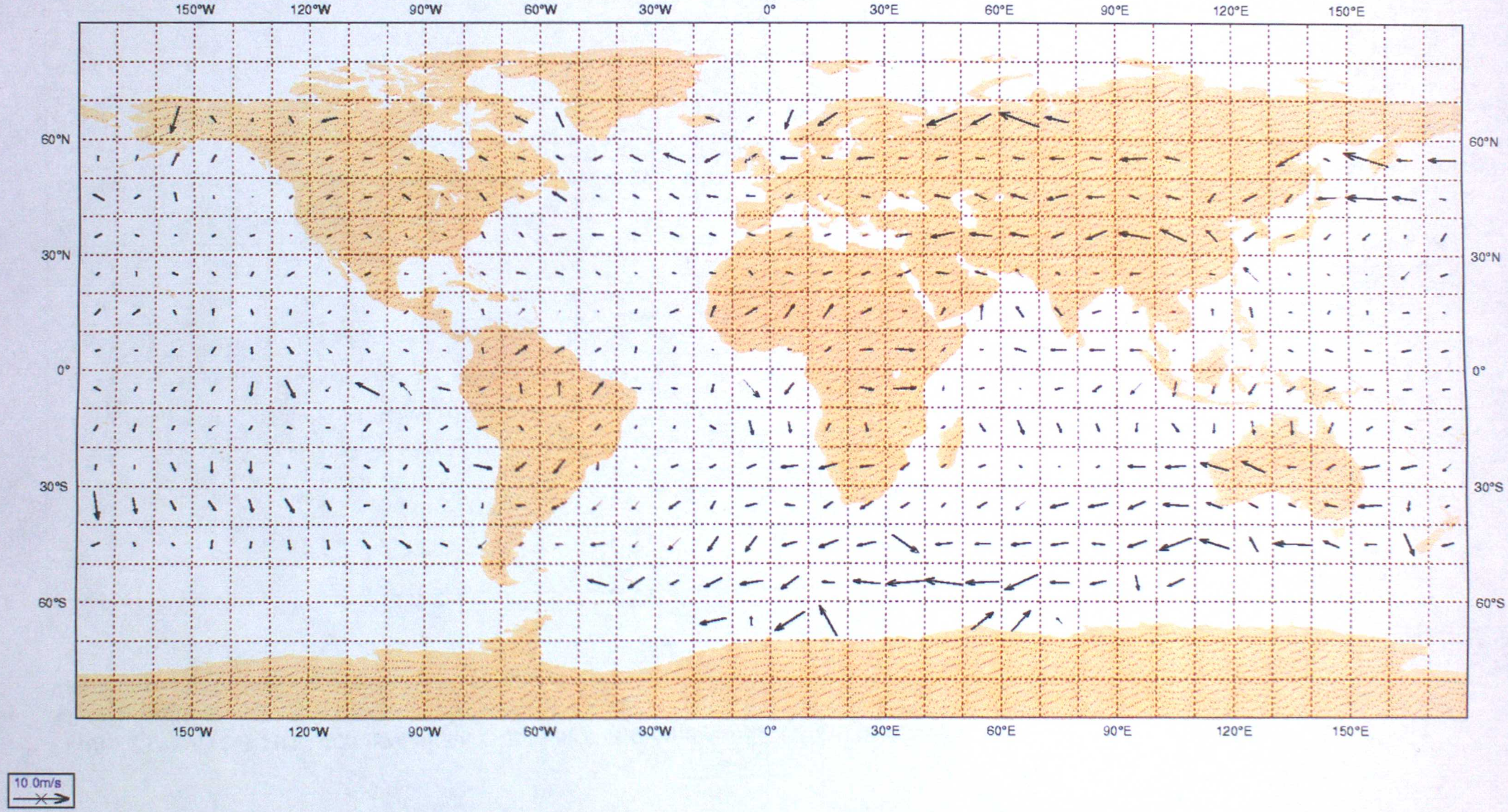

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present

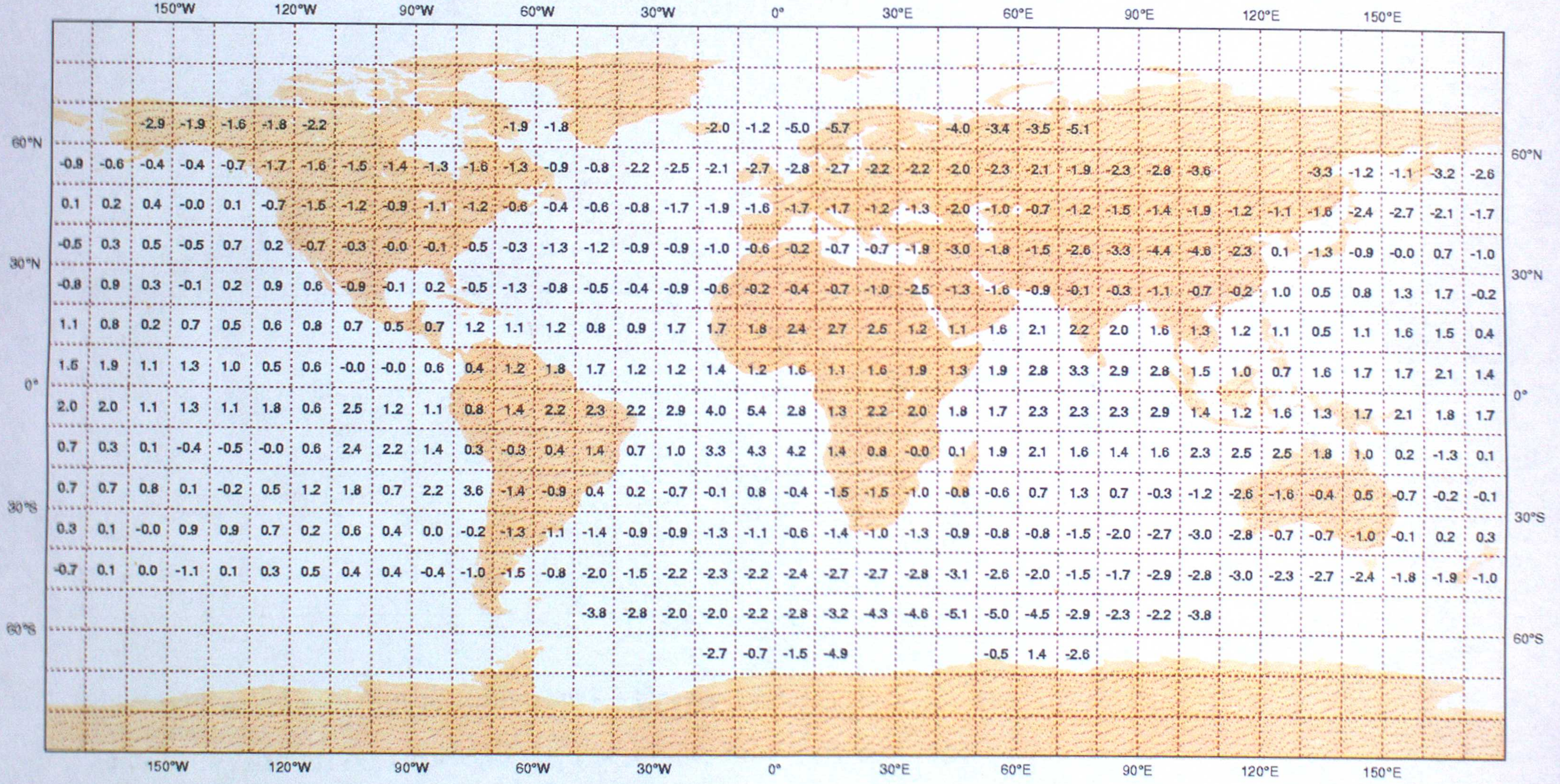
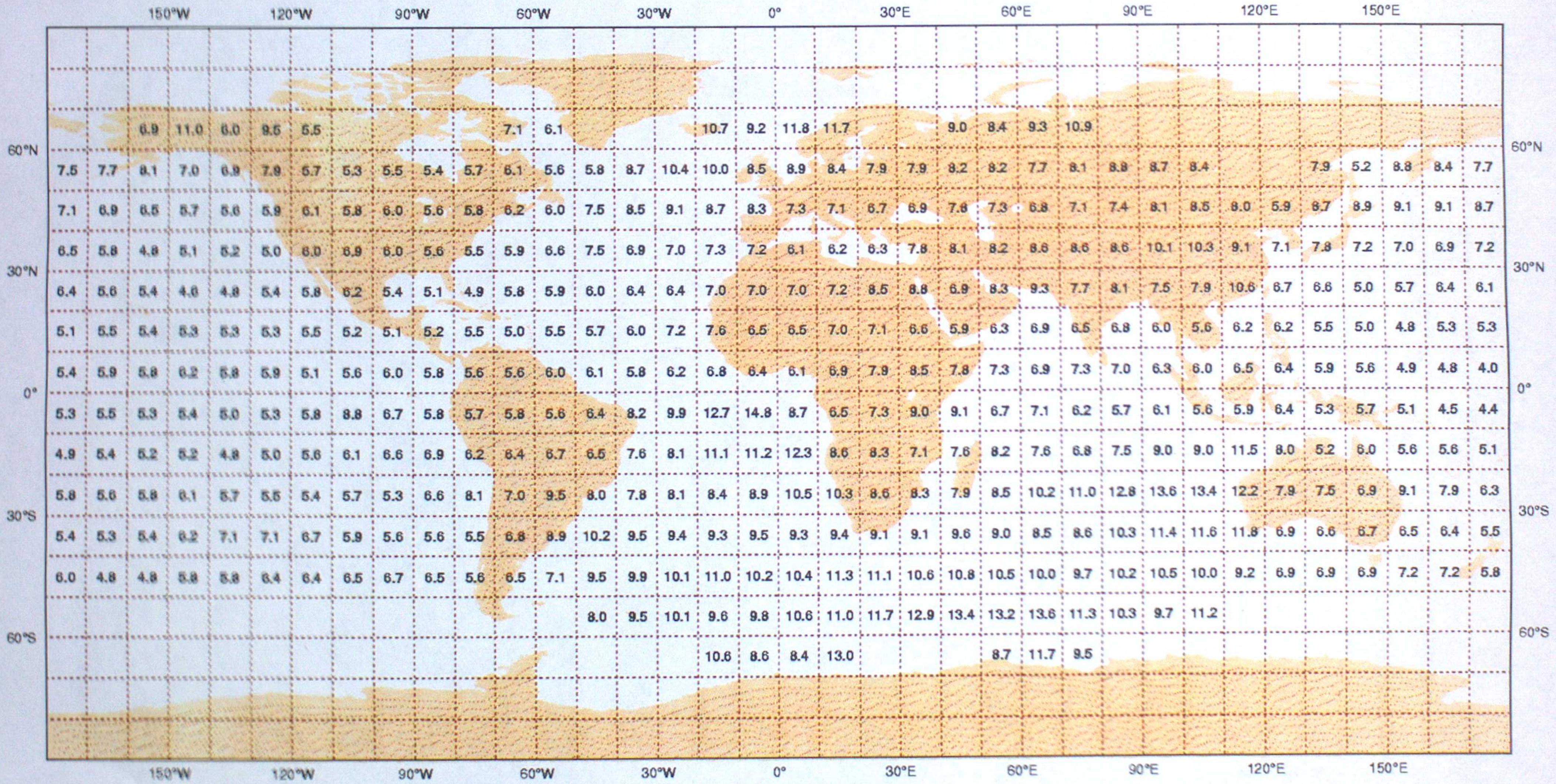

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
-2.9 -1.9 -1.6 -1.8 -2.2 -1.9 -1.8 -2.0 -1.2 -5.0 -5.7 -4.0 -3.4 -3.5 -5.1
-0.9 -0.6 -0.4 -0.4 -0.7 -1.7 -1.6 -1.5 -1.4 -1.3 -1.6 -1.3 -0.9 -0.8 -2.2 -2.5 -2.1 -2.7 -2.8 -2.7 -2.2 -2.2 -2.0 -2.3 -2.1 -1.9 -2.3 -2.8 -3.6 -3.3 -1.2 -1.1 -3.2 -2.6
0.1 0.2 0.4 -0.0 0.1 -0.7 -1.5 -1.2 -0.9 -1.1 -1.2 -0.6 -0.4 -0.6 -0.8 -1.7 -1.9 -1.6 -1.7 -1.7 -1.2 -1.3 -2.0 -1.0 -0.7 -1.2 -1.5 -1.4 -1.9 -1.2 -1.1 -1.6 -2.4 -2.7 -2.1 -1.7
-0.5 0.3 0.5 -0.5 0.7 0.2 -0.7 -0.3 -0.0 -0.1 -0.5 -0.3 -1.3 -1.2 -0.9 -0.9 -1.0 -0.6 -0.2 -0.7 -0.7 -1.9 -3.0 -1.8 -1.5 -2.6 -3.3 -4.4 -4.6 -2.3 0.1 -1.3 -0.9 -0.0 0.7 -1.0
-0.8 0.9 0.3 -0.1 0.2 0.9 0.6 -0.9 -0.1 0.2 -0.5 -1.3 -0.8 -0.5 -0.4 -0.9 -0.6 -0.2 -0.4 -0.7 -1.0 -2.5 -1.3 -1.6 -0.9 -0.1 -0.3 -1.1 -0.7 -0.2 1.0 0.5 0.8 1.3 1.7 -0.2
1.1 0.8 0.2 0.7 0.5 0.6 0.8 0.7 0.5 0.7 1.2 1.1 1.2 0.8 0.9 1.7 1.7 1.8 2.4 2.7 2.5 1.2 1.1 1.6 2.1 2.2 2.0 1.6 1.3 1.2 1.1 0.5 1.1 1.6 1.5 0.4
1.5 1.9 1.1 1.3 1.0 0.5 0.6 -0.0 -0.0 0.6 0.4 1.2 1.8 1.7 1.2 1.2 1.4 1.2 1.6 1.1 1.6 1.9 1.3 1.9 2.8 3.3 2.9 2.8 1.5 1.0 0.7 1.6 1.7 1.7 2.1 1.4
2.0 2.0 1.1 1.3 1.1 1.8 0.6 2.5 1.2 1.1 0.8 1.4 2.2 2.3 2.2 2.9 4.0 5.4 2.8 1.3 2.2 2.0 1.8 1.7 2.3 2.3 2.3 2.9 1.4 1.2 1.6 1.3 1.7 2.1 1.8 1.7
0.7 0.3 0.1 -0.4 -0.5 -0.0 0.6 2.4 2.2 1.4 0.3 -0.3 0.4 1.4 0.7 1.0 3.3 4.3 4.2 1.4 0.8 -0.0 0.1 1.9 2.1 1.6 1.4 1.6 2.3 2.5 2.5 1.8 1.0 0.2 -1.3 0.1
0.7 0.7 0.8 0.1 -0.2 0.5 1.2 1.8 0.7 2.2 3.6 -1.4 -0.9 0.4 0.2 -0.7 -0.1 0.8 -0.4 -1.5 -1.5 -1.0 -0.8 -0.6 0.7 1.3 0.7 -0.3 -1.2 -2.6 -1.6 -0.4 0.5 -0.7 -0.2 -0.1
0.3 0.1 -0.0 0.9 0.9 0.7 0.2 0.6 0.4 0.0 -0.2 -1.3 -1.1 -1.4 -0.9 -0.9 -1.3 -1.1 -0.6 -1.4 -1.0 -1.3 -0.9 -0.8 -0.8 -1.5 -2.0 -2.7 -3.0 -2.8 -0.7 -0.7 -1.0 -0.1 0.2 0.3
-0.7 0.1 0.0 -1.1 0.1 0.3 0.5 0.4 0.4 -0.4 -1.0 -1.5 -0.8 -2.0 -1.5 -2.2 -2.3 -2.2 -2.4 -2.7 -2.7 -2.8 -3.1 -2.6 -2.0 -1.5 -1.7 -2.9 -2.8 -3.0 -2.3 -2.7 -2.4 -1.8 -1.9 -1.0
-3.8 -2.8 -2.0 -2.0 -2.2 -2.8 -3.2 -4.3 -4.6 -5.1 -5.0 -4.5 -2.9 -2.3 -2.2 -3.8
-2.7 -0.7 -1.5 -4.9 -0.5 1.4 -2.6
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E

Figure 24. SATOB 101 - 400 hPa mean RMS O-B vector differences (ms-1). OCTOBER 2004
All observations
Values are plotted where greater than 10 obs are present


150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
6.9 11.0 6.0 9.5 5.5 7.1 6.1 10.7 9.2 11.8 11.7 9.0 8.4 9.3 10.9
7.5 7.7 8.1 7.0 6.9 7.9 5.7 5.3 5.5 5.4 5.7 6.1 5.6 5.8 8.7 10.4 10.0 8.5 8.9 8.4 7.9 7.9 8.2 8.2 7.7 8.1 8.8 8.7 8.4 7.9 5.2 8.8 8.4 7.7
7.1 6.9 6.5 5.7 5.6 5.9 6.1 5.8 6.0 5.6 5.8 6.2 6.0 7.5 8.5 9.1 8.7 8.3 7.3 7.1 6.7 6.9 7.6 7.3 6.8 7.1 7.4 8.1 8.5 8.0 5.9 8.7 8.9 9.1 9.1 8.7
6.5 5.8 4.8 5.1 5.2 5.0 6.0 6.9 6.0 5.6 5.5 5.9 6.6 7.5 6.9 7.0 7.3 7.2 6.1 6.2 6.3 7.8 8.1 8.2 8.6 8.6 8.6 10.1 10.3 9.1 7.1 7.8 7.2 7.0 6.9 7.2
6.4 5.6 5.4 4.6 4.8 5.4 5.8 6.2 5.4 5.1 4.9 5.8 5.9 6.0 6.4 6.4 7.0 7.0 7.0 7.2 8.5 8.8 6.9 8.3 9.3 7.7 8.1 7.5 7.9 10.6 6.7 6.6 5.0 5.7 6.4 6.1
5.1 5.5 5.4 5.3 5.3 5.3 5.5 5.2 5.1 5.2 5.5 5.0 5.5 5.7 6.0 7.2 7.6 6.5 6.5 7.0 7.1 6.6 5.9 6.3 6.9 6.5 6.8 6.0 5.6 6.2 6.2 5.5 5.0 4.8 5.3 5.3
5.4 5.9 5.8 6.2 5.8 5.9 5.1 5.6 6.0 5.8 5.6 5.6 6.0 6.1 5.8 6.2 6.8 6.4 6.1 6.9 7.9 8.5 7.8 7.3 6.9 7.3 7.0 6.3 6.0 6.5 6.4 5.9 5.6 4.9 4.8 4.0
5.3 5.5 5.3 5.4 5.0 5.3 5.8 8.8 6.7 5.8 5.7 5.8 5.6 6.4 8.2 9.9 12.7 14.8 8.7 6.5 7.3 9.0 9.1 6.7 7.1 6.2 5.7 6.1 5.6 5.9 6.4 5.3 5.7 5.1 4.5 4.4
4.9 5.4 5.2 5.2 4.8 5.0 5.6 6.1 6.6 6.9 6.2 6.4 6.7 6.5 7.6 8.1 11.1 11.2 12.3 8.6 8.3 7.1 7.6 8.2 7.6 6.8 7.5 9.0 9.0 11.5 8.0 5.2 6.0 5.6 5.6 5.1
5.8 5.6 5.8 6.1 5.7 5.5 5.4 5.7 5.3 6.6 8.1 7.0 9.5 8.0 7.8 8.1 8.4 8.9 10.5 10.3 8.6 8.3 7.9 8.5 10.2 11.0 12.8 13.6 13.4 12.2 7.9 7.5 6.9 9.1 7.9 6.3
5.4 5.3 5.4 6.2 7.1 7.1 6.7 5.9 5.6 5.6 5.5 6.8 8.9 10.2 9.5 9.4 9.3 9.5 9.3 9.4 9.1 9.1 9.6 9.0 8.5 8.6 10.3 11.4 11.6 11.8 6.9 6.6 6.7 6.5 6.4 5.5
6.0 4.8 4.8 5.8 5.8 6.4 6.4 6.5 6.7 6.5 5.6 6.5 7.1 9.5 9.9 10.1 11.0 10.2 10.4 11.3 11.1 10.6 10.8 10.5 10.0 9.7 10.2 10.5 10.0 9.2 6.9 6.9 6.9 7.2 7.2 5.8
8.0 9.5 10.1 9.6 9.8 10.6 11.0 11.7 12.9 13.4 13.2 13.6 11.3 10.3 9.7 11.2
10.6 8.6 8.4 13.0 8.7 11.7 9.5

MONITORING OF SATELLITE TEMPERATURES

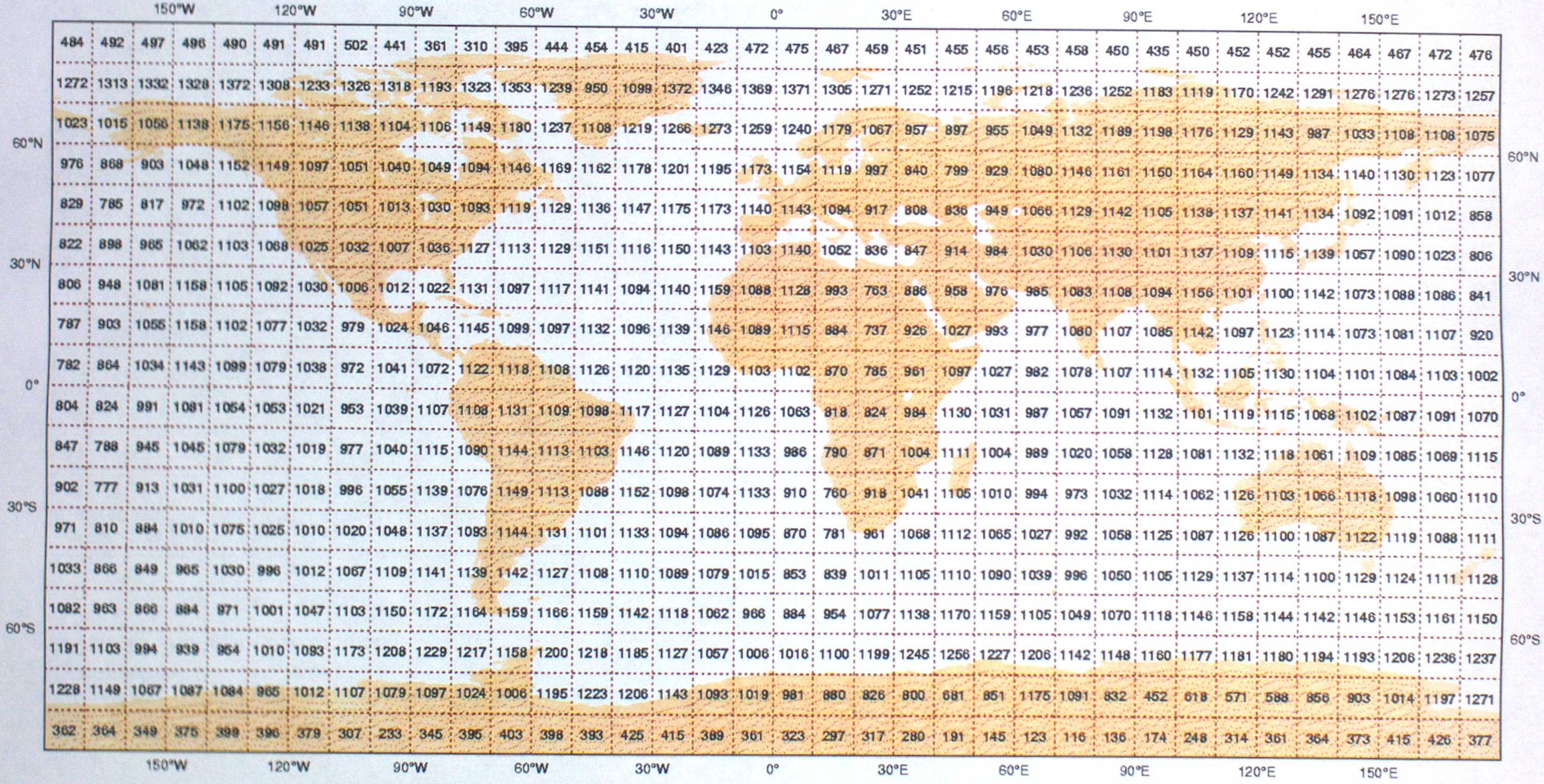
MONITORING CENTRE: EXETER

MONTH: Oct 2004

Monitoring procedures

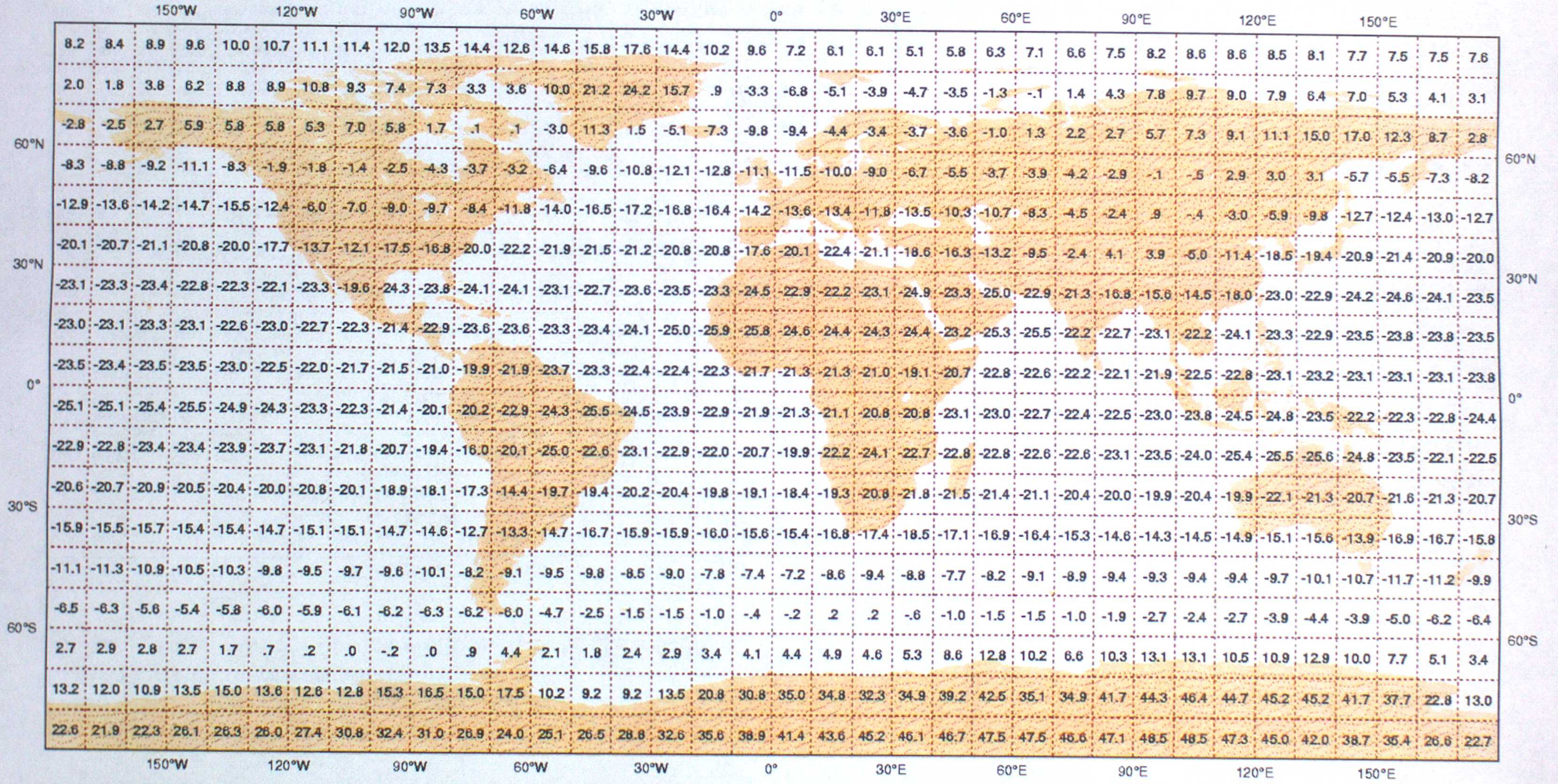
Period	:One calendar month.
Data monitored	:Reports from NOAA-15, NOAA-16 and NOAA-17.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:All soundings.
Data Extracted	:Sounding channels (and approximate weighting function peaks, hPa) HIRS8 (Surface) HIRS15 (700) HIRS11 (500-700) HIRS4 (400) AMSUA5 (700) AMSUA7 (300) AMSUA9 (100)
	:Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. OCTOBER 2004
NOAA15, using all observations
Global average number of observations in 24 hours = 646033



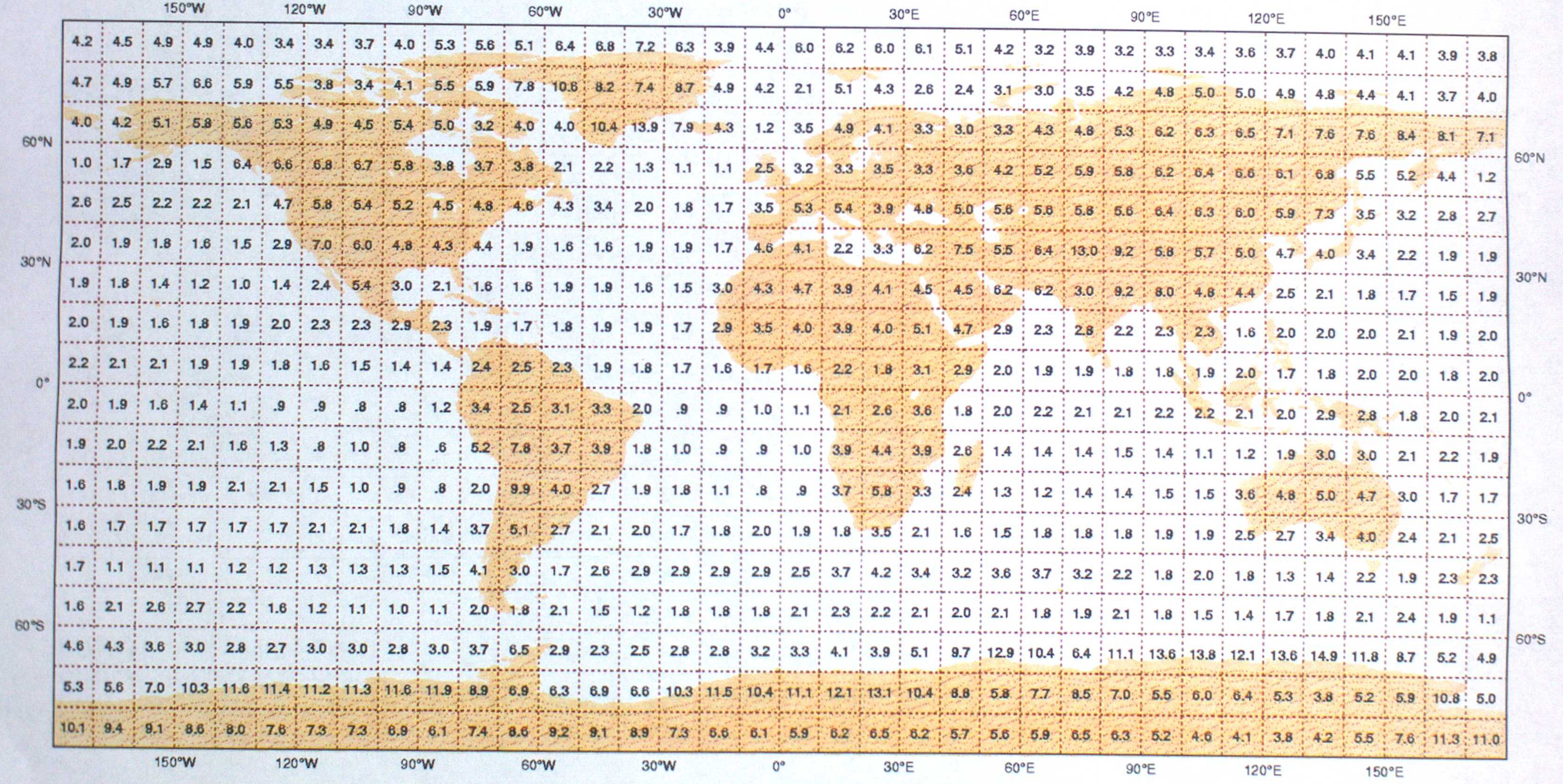
484	492	497	496	490	491	491	502	441	361	310	395	444	454	415	401	423	472	475	467	459	451	455	456	453	458	450	435	450	452	452	455	464	467	472	476
1272	1313	1332	1328	1372	1308	1233	1326	1318	1193	1323	1353	1239	950	1099	1372	1346	1369	1371	1305	1271	1252	1215	1196	1218	1236	1252	1183	1119	1170	1242	1291	1276	1276	1273	1257
1023	1015	1056	1138	1175	1156	1146	1138	1104	1106	1149	1180	1237	1108	1219	1266	1273	1259	1240	1179	1067	957	897	955	1049	1132	1189	1198	1176	1129	1143	987	1033	1108	1108	1075
976	868	903	1048	1152	1149	1097	1051	1040	1049	1094	1146	1169	1162	1178	1201	1195	1173	1154	1119	997	840	799	929	1080	1146	1161	1150	1164	1160	1149	1134	1140	1130	1123	1077
829	785	817	972	1102	1098	1057	1051	1013	1030	1093	1119	1129	1136	1147	1175	1173	1140	1143	1094	917	808	836	949	1066	1129	1142	1105	1138	1137	1141	1134	1092	1091	1012	858
822	898	965	1062	1103	1068	1025	1032	1007	1036	1127	1113	1129	1151	1116	1150	1143	1103	1140	1052	836	847	914	984	1030	1106	1130	1101	1137	1109	1115	1139	1057	1090	1023	806
806	948	1081	1158	1105	1092	1030	1006	1012	1022	1131	1097	1117	1141	1094	1140	1159	1088	1128	993	763	886	958	976	985	1083	1108	1094	1156	1101	1100	1142	1073	1088	1086	841
787	903	1055	1158	1102	1077	1032	979	1024	1046	1145	1099	1097	1132	1096	1139	1146	1089	1115	884	737	926	1027	993	977	1080	1107	1085	1142	1097	1123	1114	1073	1081	1107	920
782	864	1034	1143	1099	1079	1038	972	1041	1072	1122	1118	1108	1126	1120	1135	1129	1103	1102	870	785	961	1097	1027	982	1078	1107	1114	1132	1105	1130	1104	1101	1084	1103	1002
804	824	991	1081	1054	1053	1021	953	1039	1107	1108	1131	1109	1098	1117	1127	1104	1126	1063	818	824	984	1130	1031	987	1057	1091	1132	1101	1119	1115	1068	1102	1087	1091	1070
847	788	945	1045	1079	1032	1019	977	1040	1115	1090	1144	1113	1103	1146	1120	1089	1133	986	790	871	1004	1111	1004	989	1020	1058	1128	1081	1132	1118	1061	1109	1085	1069	1115
902	777	913	1031	1100	1027	1018	996	1055	1139	1076	1149	1113	1088	1152	1098	1074	1133	910	760	918	1041	1105	1010	994	973	1032	1114	1062	1126	1103	1066	1118	1098	1060	1110
971	810	884	1010	1075	1025	1010	1020	1048	1137	1093	1144	1131	1101	1133	1094	1086	1095	870	781	961	1068	1112	1065	1027	992	1058	1125	1087	1126	1100	1087	1122	1119	1088	1111
1033	866	849	965	1030	996	1012	1067	1109	1141	1139	1142	1127	1108	1110	1089	1079	1015	853	839	1011	1105	1110	1090	1039	996	1050	1105	1129	1137	1114	1100	1129	1124	1111	1128
1082	963	866	884	971	1001	1047	1103	1150	1172	1164	1159	1166	1159	1142	1118	1062	966	884	954	1077	1138	1170	1159	1105	1049	1070	1118	1146	1158	1144	1142	1146	1153	1161	1150
1191	1103	994	939	954	1010	1093	1173	1208	1229	1217	1158	1200	1218	1185	1127	1057	1006	1016	1100	1199	1245	1256	1227	1206	1142	1148	1160	1177	1181	1180	1194	1193	1206	1236	1237
1228	1149	1067	1087	1084	965	1012	1107	1079	1097	1024	1006	1195	1223	1206	1143	1093	1019	981	880	826	800	681	851	1175	1091	832	452	618	571	588	856	903	1014	1197	1271
362	364	349	375	399	396	379	307	233	345	395	403	398	393	425	415	389	361	323	297	317	280	191	145	123	116	136	174	248	314	361	364	373	415	426	377

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS8 (Surface)
NOAA15, using all observations



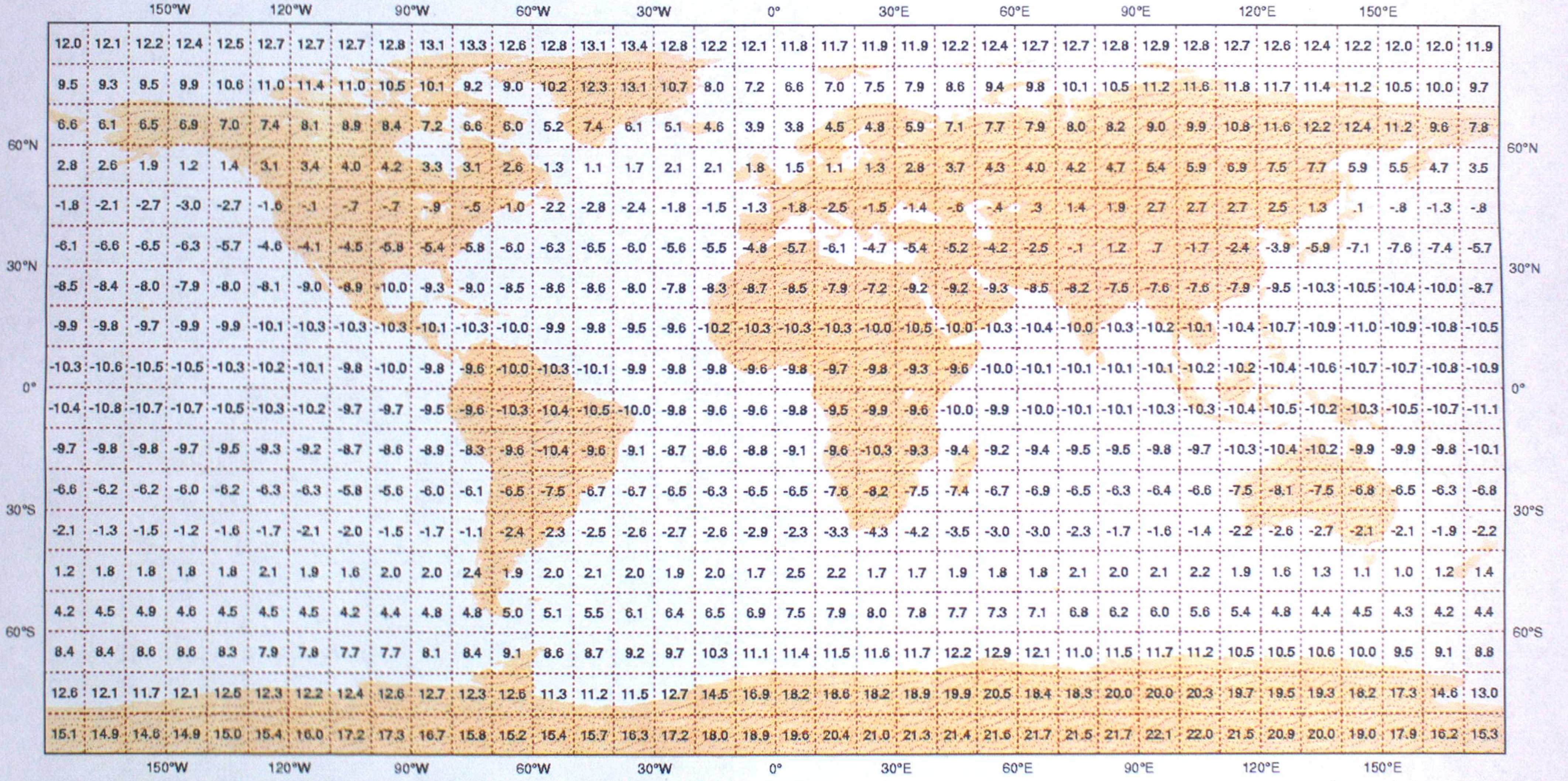
8.2	8.4	8.9	9.6	10.0	10.7	11.1	11.4	12.0	13.5	14.4	12.6	14.6	15.8	17.6	14.4	10.2	9.6	7.2	6.1	6.1	5.1	5.8	6.3	7.1	6.6	7.5	8.2	8.6	8.6	8.5	8.1	7.7	7.5	7.5	7.6
2.0	1.8	3.8	6.2	8.8	8.9	10.8	9.3	7.4	7.3	3.3	3.6	10.0	21.2	24.2	15.7	.9	-3.3	-6.8	-5.1	-3.9	-4.7	-3.5	-1.3	-.1	1.4	4.3	7.8	9.7	9.0	7.9	6.4	7.0	5.3	4.1	3.1
-2.8	-2.5	2.7	5.9	5.8	5.8	5.3	7.0	5.8	1.7	.1	.1	-3.0	11.3	1.5	-5.1	-7.3	-9.8	-9.4	-4.4	-3.4	-3.7	-3.6	-1.0	1.3	2.2	2.7	5.7	7.3	9.1	11.1	15.0	17.0	12.3	8.7	2.8
-8.3	-8.8	-9.2	-11.1	-8.3	-1.9	-1.8	-1.4	-2.5	-4.3	-3.7	-3.2	-6.4	-9.6	-10.8	-12.1	-12.8	-11.1	-11.5	-10.0	-9.0	-6.7	-5.5	-3.7	-3.9	-4.2	-2.9	-.1	-.5	2.9	3.0	3.1	-5.7	-5.5	-7.3	-8.2
-12.9	-13.6	-14.2	-14.7	-15.5	-12.4	-6.0	-7.0	-9.0	-9.7	-8.4	-11.8	-14.0	-16.5	-17.2	-16.8	-16.4	-14.2	-13.6	-13.4	-11.8	-13.5	-10.3	-10.7	-8.3	-4.5	-2.4	.9	-.4	-3.0	-5.9	-9.8	-12.7	-12.4	-13.0	-12.7
-20.1	-20.7	-21.1	-20.8	-20.0	-17.7	-13.7	-12.1	-17.5	-16.8	-20.0	-22.2	-21.9	-21.5	-21.2	-20.8	-20.8	-17.6	-20.1	-22.4	-21.1	-18.6	-16.3	-13.2	-9.5	-2.4	4.1	3.9	-5.0	-11.4	-18.5	-19.4	-20.9	-21.4	-20.9	-20.0
-23.1	-23.3	-23.4	-22.8	-22.3	-22.1	-23.3	-19.6	-24.3	-23.8	-24.1	-24.1	-23.1	-22.7	-23.6	-23.5	-23.3	-24.5	-22.9	-22.2	-23.1	-24.9	-23.3	-25.0	-22.9	-21.3	-16.8	-15.6	-14.5	-18.0	-23.0	-22.9	-24.2	-24.6	-24.1	-23.5
-23.0	-23.1	-23.3	-23.1	-22.6	-23.0	-22.7	-22.3	-21.4	-22.9	-23.6	-23.6	-23.3	-23.4	-24.1	-25.0	-25.9	-25.8	-24.6	-24.4	-24.3	-24.4	-23.2	-25.3	-25.5	-22.2	-22.7	-23.1	-22.2	-24.1	-23.3	-22.9	-23.5	-23.8	-23.8	-23.5
-23.5	-23.4	-23.5	-23.5	-23.0	-22.5	-22.0	-21.7	-21.5	-21.0	-19.9	-21.9	-23.7	-23.3	-22.4	-22.4	-22.3	-21.7	-21.3	-21.3	-21.0	-19.1	-20.7	-22.8	-22.6	-22.2	-22.1	-21.9	-22.5	-22.8	-23.1	-23.2	-23.1	-23.1	-23.1	-23.8
-25.1	-25.1	-25.4	-25.5	-24.9	-24.3	-23.3	-22.3	-21.4	-20.1	-20.2	-22.9	-24.3	-25.5	-24.5	-23.9	-22.9	-21.9	-21.3	-21.1	-20.8	-20.8	-23.1	-23.0	-22.7	-22.4	-22.5	-23.0	-23.8	-24.5	-24.8	-23.5	-22.2	-22.3	-22.8	-24.4
-22.9	-22.8	-23.4	-23.4	-23.9	-23.7	-23.1	-21.8	-20.7	-19.4	-16.0	-20.1	-25.0	-22.6	-23.1	-22.9	-22.0	-20.7	-19.9	-22.2	-24.1	-22.7	-22.8	-22.8	-22.6	-22.6	-23.1	-23.5	-24.0	-25.4	-25.5	-25.6	-24.8	-23.5	-22.1	-22.5
-20.6	-20.7	-20.9	-20.5	-20.4	-20.0	-20.8	-20.1	-18.9	-18.1	-17.3	-14.4	-19.7	-19.4	-20.2	-20.4	-19.8	-19.1	-18.4	-19.3	-20.8	-21.8	-21.5	-21.4	-21.1	-20.4	-20.0	-19.9	-20.4	-19.9	-22.1	-21.3	-20.7	-21.6	-21.3	-20.7
-15.9	-15.5	-15.7	-15.4	-15.4	-14.7	-15.1	-15.1	-14.7	-14.6	-12.7	-13.3	-14.7	-16.7	-15.9	-15.9	-16.0	-15.6	-15.4	-16.8	-17.4	-18.5	-17.1	-16.9	-16.4	-15.3	-14.6	-14.3	-14.5	-14.9	-15.1	-15.6	-13.9	-16.9	-16.7	-15.8
-11.1	-11.3	-10.9	-10.5	-10.3	-9.8	-9.5	-9.7	-9.6	-10.1	-8.2	-9.1	-9.5	-9.8	-8.5	-9.0	-7.8	-7.4	-7.2	-8.6	-9.4	-8.8	-7.7	-8.2	-9.1	-8.9	-9.4	-9.3	-9.4	-9.4	-9.7	-10.1	-10.7	-11.7	-11.2	-9.9
-6.5	-6.3	-5.6	-5.4	-5.8	-6.0	-5.9	-6.1	-6.2	-6.3	-6.2	-6.0	-4.7	-2.5	-1.5	-1.5	-1.0	-.4	-.2	.2	.2	-.6	-1.0	-1.5	-1.5	-1.0	-1.9	-2.7	-2.4	-2.7	-3.9	-4.4	-3.9	-5.0	-6.2	-6.4
2.7	2.9	2.8	2.7	1.7	.7	.2	.0	-.2	.0	.9	4.4	2.1	1.8	2.4	2.9	3.4	4.1	4.4	4.9	4.6	5.3	8.6	12.8	10.2	6.6	10.3	13.1	13.1	10.5	10.9	12.9	10.0	7.7	5.1	3.4
13.2	12.0	10.9	13.5	15.0	13.6	12.6	12.8	15.3	16.5	15.0	17.5	10.2	9.2	9.2	13.5	20.8	30.8	35.0	34.8	32.3	34.9	39.2	42.5	35.1	34.9	41.7	44.3	46.4	44.7	45.2	45.2	41.7	37.7	22.8	13.0
22.6	21.9	22.3	26.1	26.3	26.0	27.4	30.8	32.4	31.0	26.9	24.0	25.1	26.5	28.8	32.6	35.6	38.9	41.4	43.6	45.2	46.1	46.7	47.5	47.5	46.6	47.1	48.5	48.5	47.3	45.0	42.0	38.7	35.4	26.6	22.7

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS8 (Surface)
NOAA15, using all observations



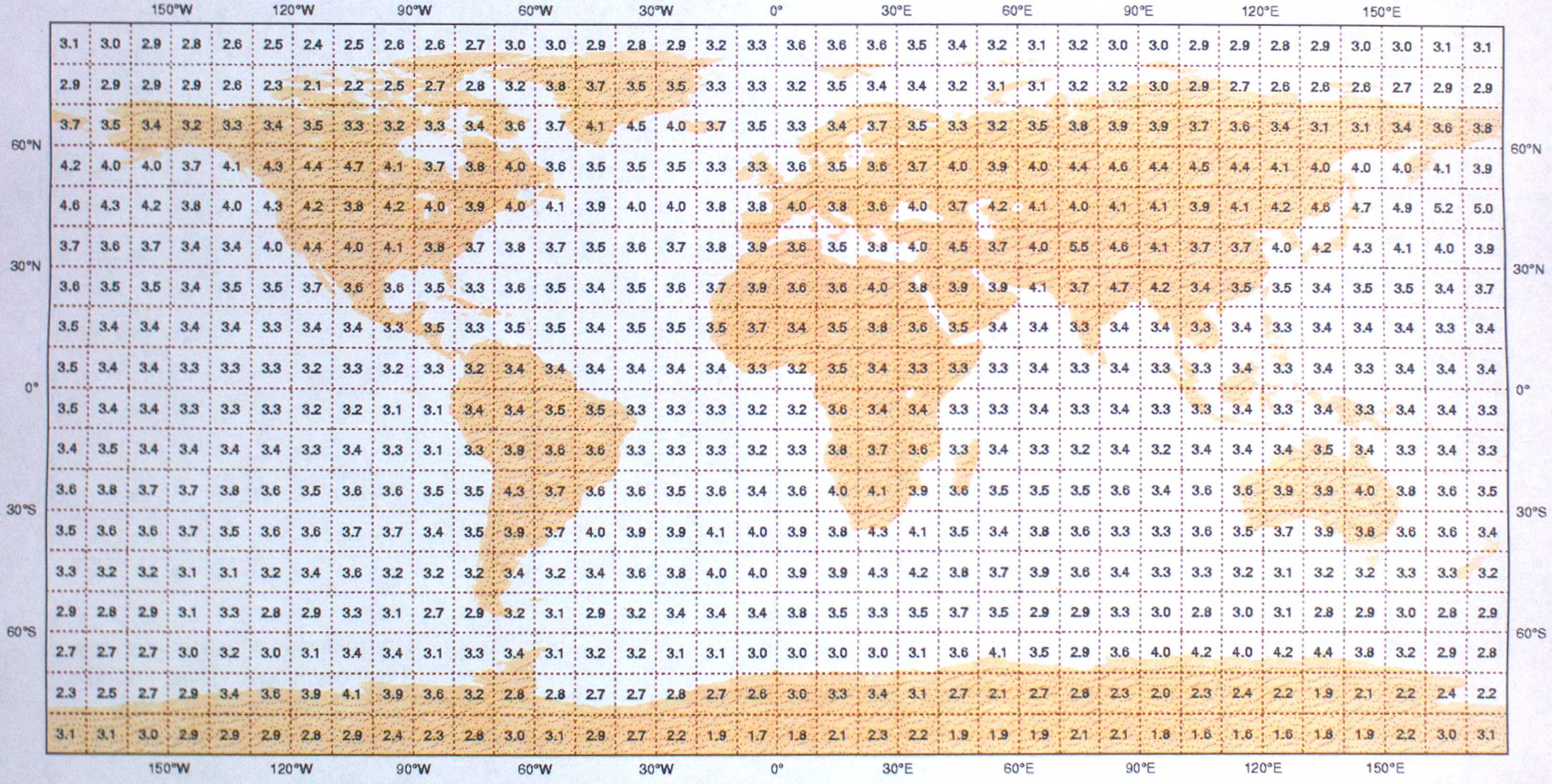
4.2	4.5	4.9	4.9	4.0	3.4	3.4	3.7	4.0	5.3	5.6	5.1	6.4	6.8	7.2	6.3	3.9	4.4	6.0	6.2	6.0	6.1	5.1	4.2	3.2	3.9	3.2	3.3	3.4	3.6	3.7	4.0	4.1	4.1	3.9	3.8
4.7	4.9	5.7	6.6	5.9	5.5	3.8	3.4	4.1	5.5	5.9	7.8	10.6	8.2	7.4	8.7	4.9	4.2	2.1	5.1	4.3	2.6	2.4	3.1	3.0	3.5	4.2	4.8	5.0	5.0	4.9	4.8	4.4	4.1	3.7	4.0
4.0	4.2	5.1	5.8	5.6	5.3	4.9	4.5	5.4	5.0	3.2	4.0	4.0	10.4	13.9	7.9	4.3	1.2	3.5	4.9	4.1	3.3	3.0	3.3	4.3	4.8	5.3	6.2	6.3	6.5	7.1	7.6	7.6	8.4	8.1	7.1
1.0	1.7	2.9	1.5	6.4	6.6	6.8	6.7	5.8	3.8	3.7	3.8	2.1	2.2	1.3	1.1	1.1	2.5	3.2	3.3	3.5	3.3	3.6	4.2	5.2	5.9	5.8	6.2	6.4	6.6	6.1	6.8	5.5	5.2	4.4	1.2
2.6	2.5	2.2	2.2	2.1	4.7	5.8	5.4	5.2	4.5	4.8	4.6	4.3	3.4	2.0	1.8	1.7	3.5	5.3	5.4	3.9	4.8	5.0	5.6	5.6	5.8	5.6	6.4	6.3	6.0	5.9	7.3	3.5	3.2	2.8	2.7
2.0	1.9	1.8	1.6	1.5	2.9	7.0	6.0	4.8	4.3	4.4	1.9	1.6	1.6	1.9	1.9	1.7	4.6	4.1	2.2	3.3	6.2	7.5	5.5	6.4	13.0	9.2	5.8	5.7	5.0	4.7	4.0	3.4	2.2	1.9	1.9
1.9	1.8	1.4	1.2	1.0	1.4	2.4	5.4	3.0	2.1	1.6	1.6	1.9	1.9	1.6	1.5	3.0	4.3	4.7	3.9	4.1	4.5	4.5	6.2	6.2	3.0	9.2	8.0	4.8	4.4	2.5	2.1	1.8	1.7	1.5	1.9
2.0	1.9	1.6	1.8	1.9	2.0	2.3	2.3	2.9	2.3	1.9	1.7	1.8	1.9	1.9	1.7	2.9	3.5	4.0	3.9	4.0	5.1	4.7	2.9	2.3	2.8	2.2	2.3	2.3	1.6	2.0	2.0	2.0	2.1	1.9	2.0
2.2	2.1	2.1	1.9	1.9	1.8	1.6	1.5	1.4	1.4	2.4	2.5	2.3	1.9	1.8	1.7	1.6	1.7	1.6	2.2	1.8	3.1	2.9	2.0	1.9	1.9	1.8	1.8	1.9	2.0	1.7	1.8	2.0	2.0	1.8	2.0
2.0	1.9	1.6	1.4	1.1	.9	.9	.8	.8	1.2	3.4	2.5	3.1	3.3	2.0	.9	.9	1.0	1.1	2.1	2.6	3.6	1.8	2.0	2.2	2.1	2.1	2.2	2.2	2.1	2.0	2.9	2.8	1.8	2.0	2.1
1.9	2.0	2.2	2.1	1.6	1.3	.8	1.0	.8	.6	5.2	7.8	3.7	3.9	1.8	1.0	.9	.9	1.0	3.9	4.4	3.9	2.6	1.4	1.4	1.4	1.5	1.4	1.1	1.2	1.9	3.0	3.0	2.1	2.2	1.9
1.6	1.8	1.9	1.9	2.1	2.1	1.5	1.0	.9	.8	2.0	9.9	4.0	2.7	1.9	1.8	1.1	.8	.9	3.7	5.8	3.3	2.4	1.3	1.2	1.4	1.4	1.5	1.5	3.6	4.8	5.0	4.7	3.0	1.7	1.7
1.6	1.7	1.7	1.7	1.7	1.7	2.1	2.1	1.8	1.4	3.7	5.1	2.7	2.1	2.0	1.7	1.8	2.0	1.9	1.8	3.5	2.1	1.6	1.5	1.8	1.8	1.8	1.9	1.9	2.5	2.7	3.4	4.0	2.4	2.1	2.5
1.7	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.5	4.1	3.0	1.7	2.6	2.9	2.9	2.9	2.9	2.5	3.7	4.2	3.4	3.2	3.6	3.7	3.2	2.2	1.8	2.0	1.8	1.3	1.4	2.2	1.9	2.3	2.3
1.6	2.1	2.6	2.7	2.2	1.6	1.2	1.1	1.0	1.1	2.0	1.8	2.1	1.5	1.2	1.8	1.8	1.8	2.1	2.3	2.2	2.1	2.0	2.1	1.8	1.9	2.1	1.8	1.5	1.4	1.7	1.8	2.1	2.4	1.9	1.1
4.6	4.3	3.6	3.0	2.8	2.7	3.0	3.0	2.8	3.0	3.7	6.5	2.9	2.3	2.5	2.8	2.8	3.2	3.3	4.1	3.9	5.1	9.7	12.9	10.4	6.4	11.1	13.6	13.8	12.1	13.6	14.9	11.8	8.7	5.2	4.9
5.3	5.6	7.0	10.3	11.6	11.4	11.2	11.3	11.6	11.9	8.9	6.9	6.3	6.9	6.6	10.3	11.5	10.4	11.1	12.1	13.1	10.4	8.8	5.8	7.7	8.5	7.0	5.5	6.0	6.4	5.3	3.8	5.2	5.9	10.8	5.0
10.1	9.4	9.1	8.6	8.0	7.6	7.3	7.3	6.9	6.1	7.4	8.6	9.2	9.1	8.9	7.3	6.6	6.1	5.9	6.2	6.5	6.2	5.7	5.6	5.9	6.5	6.3	5.2	4.6	4.1	3.8	4.2	5.5	7.6	11.3	11.0

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



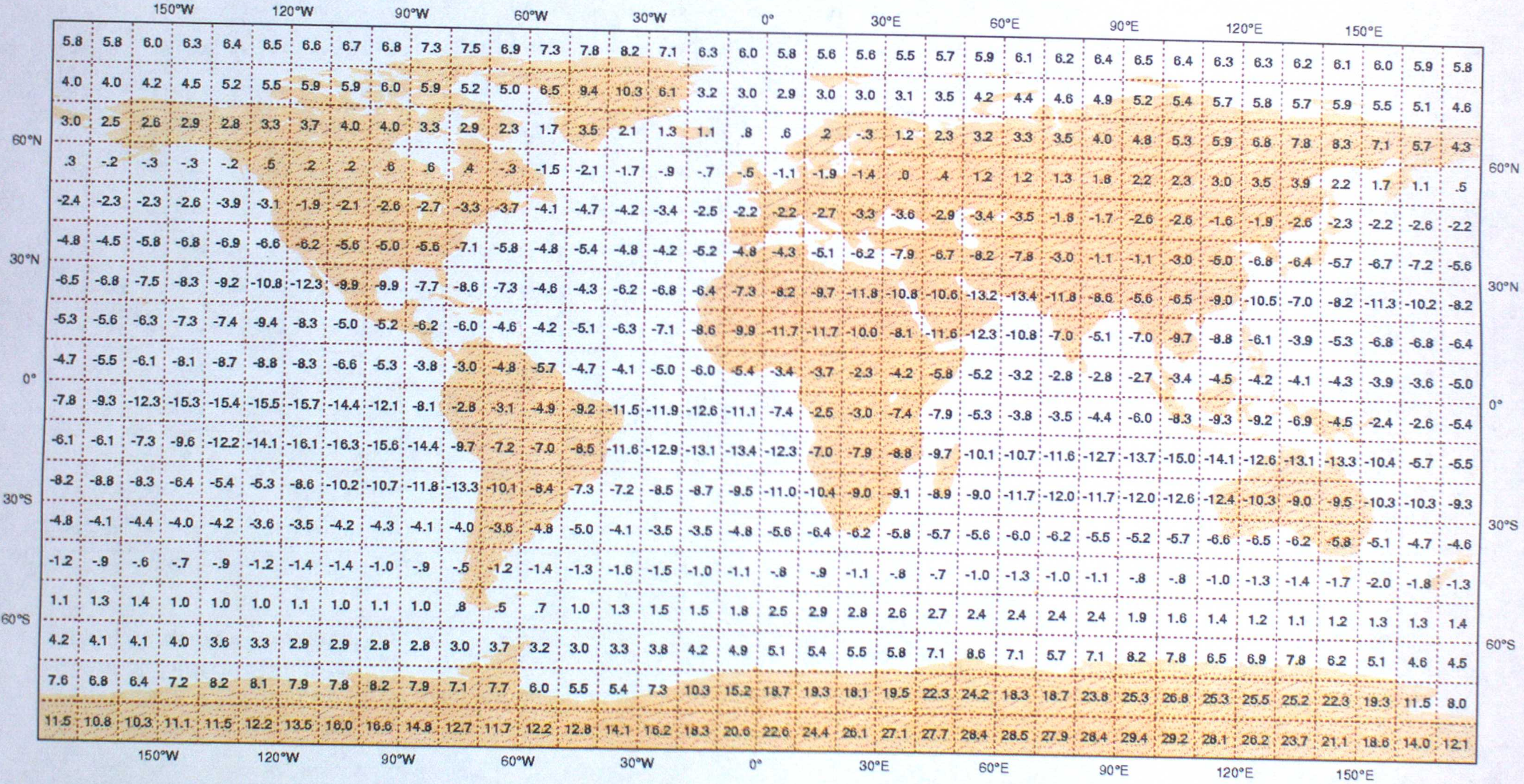
12.0	12.1	12.2	12.4	12.5	12.7	12.7	12.7	12.8	13.1	13.3	12.6	12.8	13.1	13.4	12.8	12.2	12.1	11.8	11.7	11.9	11.9	12.2	12.4	12.7	12.7	12.8	12.9	12.8	12.7	12.6	12.4	12.2	12.0	12.0	11.9
9.5	9.3	9.5	9.9	10.6	11.0	11.4	11.0	10.5	10.1	9.2	9.0	10.2	12.3	13.1	10.7	8.0	7.2	6.6	7.0	7.5	7.9	8.6	9.4	9.8	10.1	10.5	11.2	11.6	11.8	11.7	11.4	11.2	10.5	10.0	9.7
6.6	6.1	6.5	6.9	7.0	7.4	8.1	8.9	8.4	7.2	6.6	6.0	5.2	7.4	6.1	5.1	4.6	3.9	3.8	4.5	4.8	5.9	7.1	7.7	7.9	8.0	8.2	9.0	9.9	10.8	11.6	12.2	12.4	11.2	9.6	7.8
2.8	2.6	1.9	1.2	1.4	3.1	3.4	4.0	4.2	3.3	3.1	2.6	1.3	1.1	1.7	2.1	2.1	1.8	1.5	1.1	1.3	2.8	3.7	4.3	4.0	4.2	4.7	5.4	5.9	6.9	7.5	7.7	5.9	5.5	4.7	3.5
-1.8	-2.1	-2.7	-3.0	-2.7	-1.6	-.1	-.7	-.7	-.9	-.5	-1.0	-2.2	-2.8	-2.4	-1.8	-1.5	-1.3	-1.8	-2.5	-1.5	-1.4	-.6	-.4	.3	1.4	1.9	2.7	2.7	2.7	2.5	1.3	.1	-.8	-1.3	-.8
-6.1	-6.6	-6.5	-6.3	-5.7	-4.6	-4.1	-4.5	-5.8	-5.4	-5.8	-6.0	-6.3	-6.5	-6.0	-5.6	-5.5	-4.8	-5.7	-6.1	-4.7	-5.4	-5.2	-4.2	-2.5	-.1	1.2	.7	-1.7	-2.4	-3.9	-5.9	-7.1	-7.6	-7.4	-5.7
-8.5	-8.4	-8.0	-7.9	-8.0	-8.1	-9.0	-8.9	-10.0	-9.3	-9.0	-8.5	-8.6	-8.6	-8.0	-7.8	-8.3	-8.7	-8.5	-7.9	-7.2	-9.2	-9.2	-9.3	-8.5	-8.2	-7.5	-7.6	-7.6	-7.9	-9.5	-10.3	-10.5	-10.4	-10.0	-8.7
-9.9	-9.8	-9.7	-9.9	-9.9	-10.1	-10.3	-10.3	-10.3	-10.1	-10.3	-10.0	-9.9	-9.8	-9.5	-9.6	-10.2	-10.3	-10.3	-10.3	-10.0	-10.5	-10.0	-10.3	-10.4	-10.0	-10.3	-10.2	-10.1	-10.4	-10.7	-10.9	-11.0	-10.9	-10.8	-10.5
-10.3	-10.6	-10.5	-10.5	-10.3	-10.2	-10.1	-9.8	-10.0	-9.8	-9.6	-10.0	-10.3	-10.1	-9.9	-9.8	-9.8	-9.6	-9.8	-9.7	-9.8	-9.3	-9.6	-10.0	-10.1	-10.1	-10.1	-10.1	-10.2	-10.2	-10.4	-10.6	-10.7	-10.7	-10.8	-10.9
-10.4	-10.8	-10.7	-10.7	-10.5	-10.3	-10.2	-9.7	-9.7	-9.5	-9.6	-10.3	-10.4	-10.5	-10.0	-9.8	-9.6	-9.6	-9.8	-9.5	-9.9	-9.6	-10.0	-9.9	-10.0	-10.1	-10.1	-10.3	-10.3	-10.4	-10.5	-10.2	-10.3	-10.5	-10.7	-11.1
-9.7	-9.8	-9.8	-9.7	-9.5	-9.3	-9.2	-8.7	-8.6	-8.9	-8.3	-9.6	-10.4	-9.6	-9.1	-8.7	-8.6	-8.8	-9.1	-9.6	-10.3	-9.3	-9.4	-9.2	-9.4	-9.5	-9.5	-9.8	-9.7	-10.3	-10.4	-10.2	-9.9	-9.9	-9.8	-10.1
-6.6	-6.2	-6.2	-6.0	-6.2	-6.3	-6.3	-5.8	-5.6	-6.0	-6.1	-6.5	-7.5	-6.7	-6.7	-6.5	-6.3	-6.5	-6.5	-7.6	-8.2	-7.5	-7.4	-6.7	-6.9	-6.5	-6.3	-6.4	-6.6	-7.5	-8.1	-7.5	-6.8	-6.5	-6.3	-6.8
-2.1	-1.3	-1.5	-1.2	-1.6	-1.7	-2.1	-2.0	-1.5	-1.7	-1.1	-2.4	-2.3	-2.5	-2.6	-2.7	-2.6	-2.9	-2.3	-3.3	-4.3	-4.2	-3.5	-3.0	-3.0	-2.3	-1.7	-1.6	-1.4	-2.2	-2.6	-2.7	-2.1	-2.1	-1.9	-2.2
1.2	1.8	1.8	1.8	1.8	2.1	1.9	1.6	2.0	2.0	2.4	1.9	2.0	2.1	2.0	1.9	2.0	1.7	2.5	2.2	1.7	1.7	1.9	1.8	1.8	2.1	2.0	2.1	2.2	1.9	1.6	1.3	1.1	1.0	1.2	1.4
4.2	4.5	4.9	4.6	4.5	4.5	4.5	4.2	4.4	4.8	4.8	5.0	5.1	5.5	6.1	6.4	6.5	6.9	7.5	7.9	8.0	7.8	7.7	7.3	7.1	6.8	6.2	6.0	5.6	5.4	4.8	4.4	4.5	4.3	4.2	4.4
8.4	8.4	8.6	8.6	8.3	7.9	7.8	7.7	7.7	8.1	8.4	9.1	8.6	8.7	9.2	9.7	10.3	11.1	11.4	11.5	11.6	11.7	12.2	12.9	12.1	11.0	11.5	11.7	11.2	10.5	10.5	10.6	10.0	9.5	9.1	8.8
12.6	12.1	11.7	12.1	12.5	12.3	12.2	12.4	12.6	12.7	12.3	12.6	11.3	11.2	11.5	12.7	14.5	16.9	18.2	18.6	18.2	18.9	19.9	20.5	18.4	18.3	20.0	20.0	20.3	19.7	19.5	19.3	18.2	17.3	14.6	13.0
15.1	14.9	14.6	14.9	15.0	15.4	16.0	17.2	17.3	16.7	15.8	15.2	15.4	15.7	16.3	17.2	18.0	18.9	19.6	20.4	21.0	21.3	21.4	21.6	21.7	21.5	21.7	22.1	22.0	21.5	20.9	20.0	19.0	17.9	16.2	15.3

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



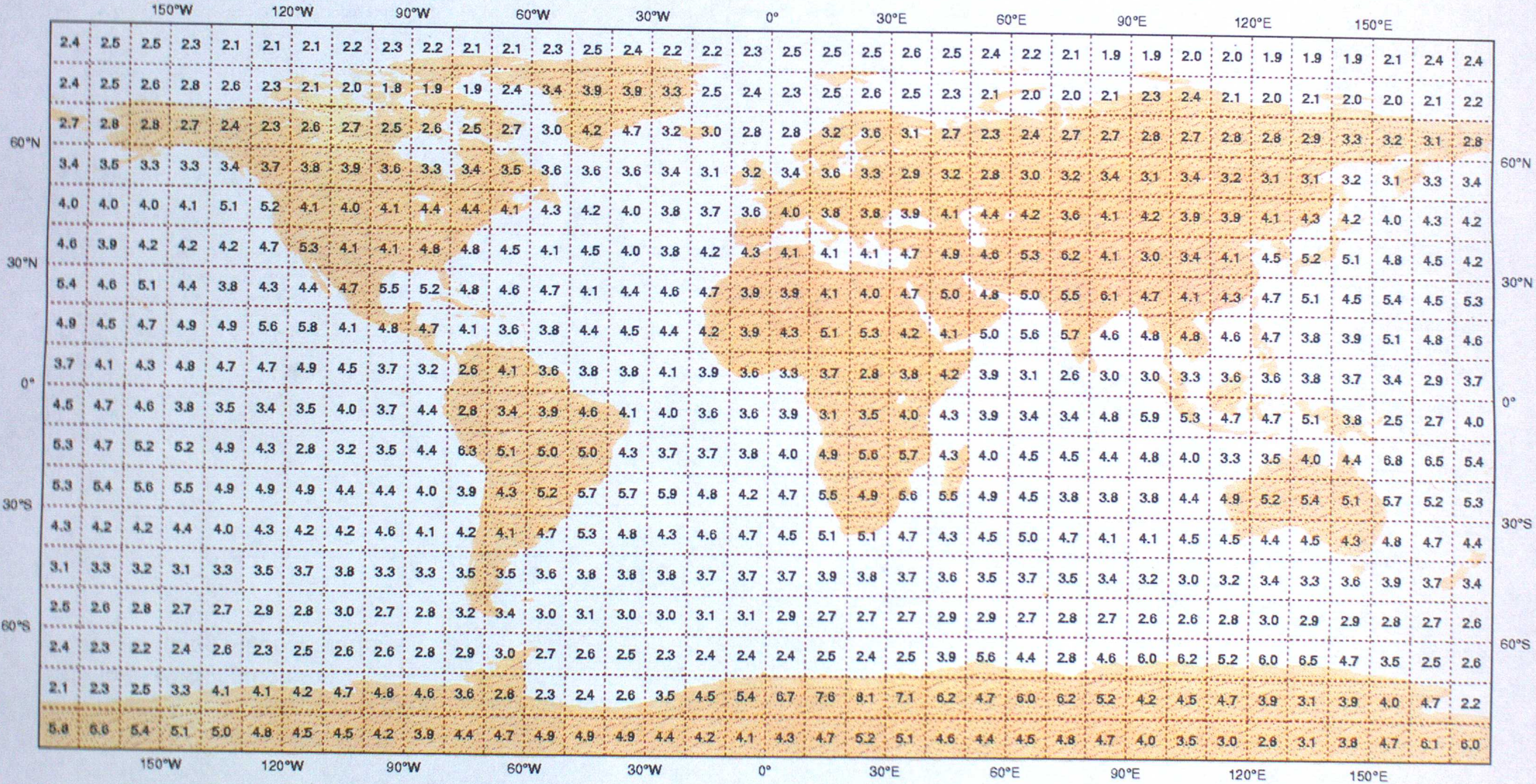
3.1	3.0	2.9	2.8	2.6	2.5	2.4	2.5	2.6	2.6	2.7	3.0	3.0	2.9	2.8	2.9	3.2	3.3	3.6	3.6	3.6	3.5	3.4	3.2	3.1	3.2	3.0	3.0	2.9	2.9	2.8	2.9	3.0	3.0	3.1	3.1
2.9	2.9	2.9	2.9	2.6	2.3	2.1	2.2	2.5	2.7	2.8	3.2	3.8	3.7	3.5	3.5	3.3	3.3	3.2	3.5	3.4	3.4	3.2	3.1	3.1	3.2	3.2	3.0	2.9	2.7	2.6	2.6	2.6	2.7	2.9	2.9
3.7	3.5	3.4	3.2	3.3	3.4	3.5	3.3	3.2	3.3	3.4	3.6	3.7	4.1	4.5	4.0	3.7	3.5	3.3	3.4	3.7	3.5	3.3	3.2	3.5	3.8	3.9	3.9	3.7	3.6	3.4	3.1	3.1	3.4	3.6	3.8
4.2	4.0	4.0	3.7	4.1	4.3	4.4	4.7	4.1	3.7	3.8	4.0	3.6	3.5	3.5	3.5	3.3	3.3	3.6	3.5	3.6	3.7	4.0	3.9	4.0	4.4	4.6	4.4	4.5	4.4	4.1	4.0	4.0	4.0	4.1	3.9
4.6	4.3	4.2	3.8	4.0	4.3	4.2	3.8	4.2	4.0	3.9	4.0	4.1	3.9	4.0	4.0	3.8	3.8	4.0	3.8	3.6	4.0	3.7	4.2	4.1	4.0	4.1	4.1	3.9	4.1	4.2	4.6	4.7	4.9	5.2	5.0
3.7	3.6	3.7	3.4	3.4	4.0	4.4	4.0	4.1	3.8	3.7	3.8	3.7	3.5	3.6	3.7	3.8	3.9	3.6	3.5	3.8	4.0	4.5	3.7	4.0	5.5	4.6	4.1	3.7	3.7	4.0	4.2	4.3	4.1	4.0	3.9
3.6	3.5	3.5	3.4	3.5	3.5	3.7	3.6	3.6	3.5	3.3	3.6	3.5	3.4	3.5	3.6	3.7	3.9	3.6	3.6	4.0	3.8	3.9	3.9	4.1	3.7	4.7	4.2	3.4	3.5	3.5	3.4	3.5	3.5	3.4	3.7
3.5	3.4	3.4	3.4	3.4	3.3	3.4	3.4	3.3	3.5	3.3	3.5	3.5	3.4	3.5	3.5	3.5	3.7	3.4	3.5	3.8	3.6	3.5	3.4	3.4	3.3	3.4	3.4	3.3	3.4	3.3	3.4	3.4	3.4	3.3	3.4
3.5	3.4	3.4	3.3	3.3	3.3	3.2	3.3	3.2	3.3	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.2	3.5	3.4	3.3	3.3	3.3	3.4	3.3	3.4	3.3	3.3	3.4	3.3	3.4	3.3	3.4	3.4	3.4
3.5	3.4	3.4	3.3	3.3	3.3	3.2	3.2	3.1	3.1	3.4	3.4	3.5	3.5	3.3	3.3	3.3	3.2	3.2	3.6	3.4	3.4	3.3	3.3	3.4	3.3	3.4	3.3	3.3	3.4	3.3	3.4	3.3	3.4	3.4	3.3
3.4	3.5	3.4	3.4	3.4	3.4	3.3	3.4	3.3	3.1	3.3	3.9	3.6	3.6	3.3	3.3	3.3	3.2	3.3	3.8	3.7	3.6	3.3	3.4	3.3	3.2	3.4	3.2	3.4	3.4	3.4	3.5	3.4	3.3	3.4	3.3
3.6	3.8	3.7	3.7	3.8	3.6	3.5	3.6	3.6	3.5	3.5	4.3	3.7	3.6	3.6	3.5	3.6	3.4	3.6	4.0	4.1	3.9	3.6	3.5	3.5	3.5	3.6	3.4	3.6	3.6	3.9	3.9	4.0	3.8	3.6	3.5
3.5	3.6	3.6	3.7	3.5	3.6	3.6	3.7	3.7	3.4	3.5	3.9	3.7	4.0	3.9	3.9	4.1	4.0	3.9	3.8	4.3	4.1	3.5	3.4	3.8	3.6	3.3	3.3	3.6	3.5	3.7	3.9	3.8	3.6	3.6	3.4
3.3	3.2	3.2	3.1	3.1	3.2	3.4	3.6	3.2	3.2	3.2	3.4	3.2	3.4	3.6	3.8	4.0	4.0	3.9	3.9	4.3	4.2	3.8	3.7	3.9	3.6	3.4	3.3	3.3	3.2	3.1	3.2	3.2	3.3	3.3	3.2
2.9	2.8	2.9	3.1	3.3	2.8	2.9	3.3	3.1	2.7	2.9	3.2	3.1	2.9	3.2	3.4	3.4	3.4	3.8	3.5	3.3	3.5	3.7	3.5	2.9	2.9	3.3	3.0	2.8	3.0	3.1	2.8	2.9	3.0	2.8	2.9
2.7	2.7	2.7	3.0	3.2	3.0	3.1	3.4	3.4	3.1	3.3	3.4	3.1	3.2	3.2	3.1	3.1	3.0	3.0	3.0	3.0	3.1	3.6	4.1	3.5	2.9	3.6	4.0	4.2	4.0	4.2	4.4	3.8	3.2	2.9	2.8
2.3	2.5	2.7	2.9	3.4	3.6	3.9	4.1	3.9	3.6	3.2	2.8	2.8	2.7	2.7	2.8	2.7	2.6	3.0	3.3	3.4	3.1	2.7	2.1	2.7	2.8	2.3	2.0	2.3	2.4	2.2	1.9	2.1	2.2	2.4	2.2
3.1	3.1	3.0	2.9	2.9	2.9	2.8	2.9	2.4	2.3	2.8	3.0	3.1	2.9	2.7	2.2	1.9	1.7	1.8	2.1	2.3	2.2	1.9	1.9	1.9	2.1	2.1	1.8	1.6	1.6	1.6	1.8	1.9	2.2	3.0	3.1

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



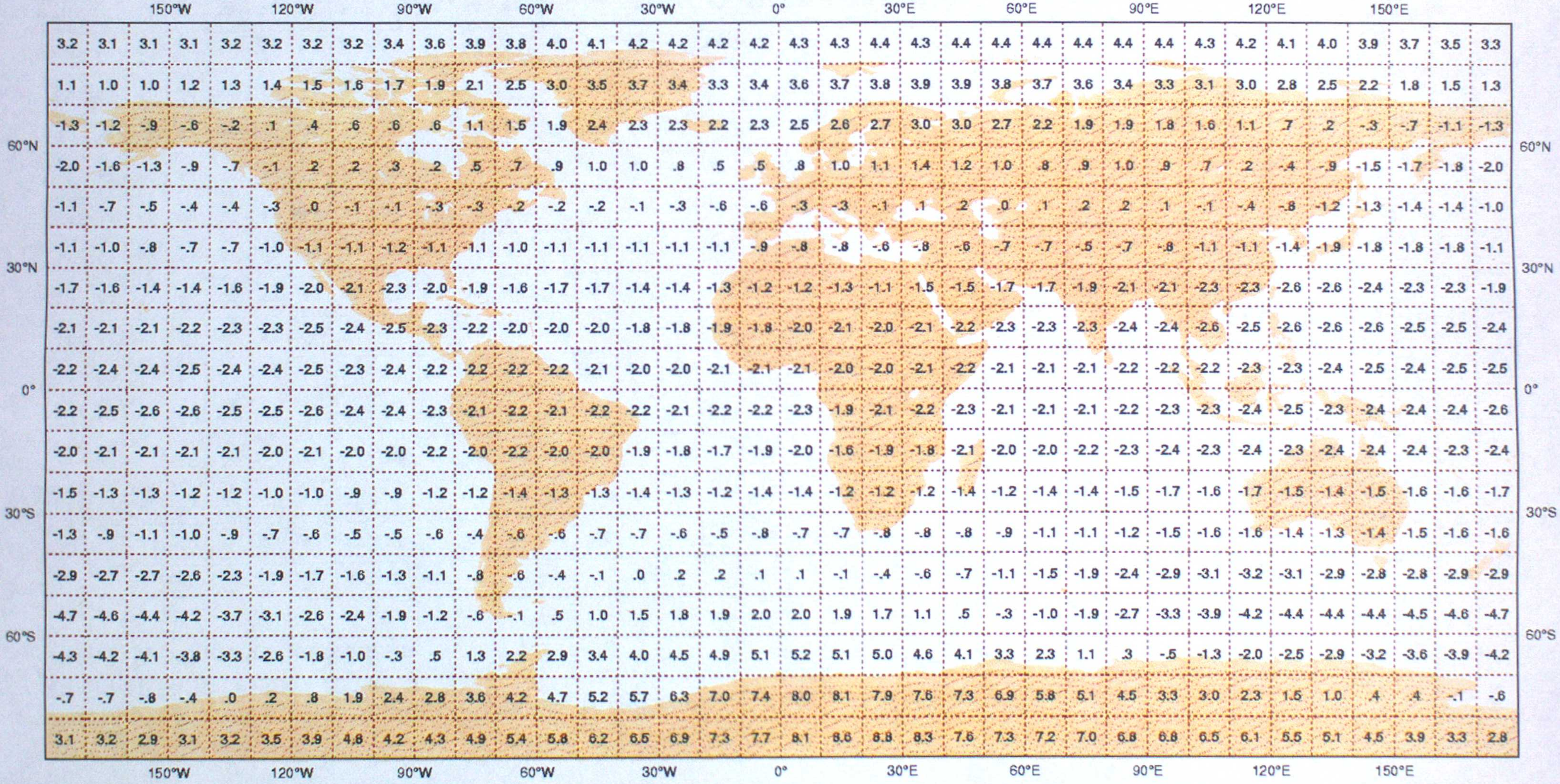
5.8	5.8	6.0	6.3	6.4	6.5	6.6	6.7	6.8	7.3	7.5	6.9	7.3	7.8	8.2	7.1	6.3	6.0	5.8	5.6	5.6	5.5	5.7	5.9	6.1	6.2	6.4	6.5	6.4	6.3	6.3	6.2	6.1	6.0	5.9	5.8
4.0	4.0	4.2	4.5	5.2	5.5	5.9	5.9	6.0	5.9	5.2	5.0	6.5	9.4	10.3	6.1	3.2	3.0	2.9	3.0	3.0	3.1	3.5	4.2	4.4	4.6	4.9	5.2	5.4	5.7	5.8	5.7	5.9	5.5	5.1	4.6
3.0	2.5	2.6	2.9	2.8	3.3	3.7	4.0	4.0	3.3	2.9	2.3	1.7	3.5	2.1	1.3	1.1	.8	.6	.2	-.3	1.2	2.3	3.2	3.3	3.5	4.0	4.8	5.3	5.9	6.8	7.8	8.3	7.1	5.7	4.3
.3	-.2	-.3	-.3	-.2	.5	.2	.2	.6	.6	.4	-.3	-1.5	-2.1	-1.7	-.9	-.7	-.5	-1.1	-1.9	-1.4	.0	.4	1.2	1.2	1.3	1.8	2.2	2.3	3.0	3.5	3.9	2.2	1.7	1.1	.5
-2.4	-2.3	-2.3	-2.6	-3.9	-3.1	-1.9	-2.1	-2.6	-2.7	-3.3	-3.7	-4.1	-4.7	-4.2	-3.4	-2.5	-2.2	-2.2	-2.7	-3.3	-3.6	-2.9	-3.4	-3.5	-1.8	-1.7	-2.6	-2.6	-1.6	-1.9	-2.6	-2.3	-2.2	-2.6	-2.2
-4.8	-4.5	-5.8	-6.8	-6.9	-6.6	-6.2	-5.6	-5.0	-5.6	-7.1	-5.8	-4.8	-5.4	-4.8	-4.2	-5.2	-4.8	-4.3	-5.1	-6.2	-7.9	-6.7	-8.2	-7.8	-3.0	-1.1	-1.1	-3.0	-5.0	-6.8	-6.4	-5.7	-6.7	-7.2	-5.6
-6.5	-6.8	-7.5	-8.3	-9.2	-10.8	-12.3	-9.9	-9.9	-7.7	-8.6	-7.3	-4.6	-4.3	-6.2	-6.8	-6.4	-7.3	-8.2	-9.7	-11.8	-10.8	-10.6	-13.2	-13.4	-11.8	-8.6	-5.6	-6.5	-9.0	-10.5	-7.0	-8.2	-11.3	-10.2	-8.2
-5.3	-5.6	-6.3	-7.3	-7.4	-9.4	-8.3	-5.0	-5.2	-6.2	-6.0	-4.6	-4.2	-5.1	-6.3	-7.1	-8.6	-9.9	-11.7	-11.7	-10.0	-8.1	-11.6	-12.3	-10.8	-7.0	-5.1	-7.0	-9.7	-8.8	-6.1	-3.9	-5.3	-6.8	-6.8	-6.4
-4.7	-5.5	-6.1	-8.1	-8.7	-8.8	-8.3	-6.6	-5.3	-3.8	-3.0	-4.8	-5.7	-4.7	-4.1	-5.0	-6.0	-5.4	-3.4	-3.7	-2.3	-4.2	-5.8	-5.2	-3.2	-2.8	-2.8	-2.7	-3.4	-4.5	-4.2	-4.1	-4.3	-3.9	-3.6	-5.0
-7.8	-9.3	-12.3	-15.3	-15.4	-15.5	-15.7	-14.4	-12.1	-8.1	-2.8	-3.1	-4.9	-9.2	-11.5	-11.9	-12.6	-11.1	-7.4	-2.5	-3.0	-7.4	-7.9	-5.3	-3.8	-3.5	-4.4	-6.0	-8.3	-9.3	-9.2	-6.9	-4.5	-2.4	-2.6	-5.4
-6.1	-6.1	-7.3	-9.6	-12.2	-14.1	-16.1	-16.3	-15.6	-14.4	-9.7	-7.2	-7.0	-8.5	-11.6	-12.9	-13.1	-13.4	-12.3	-7.0	-7.9	-8.8	-9.7	-10.1	-10.7	-11.6	-12.7	-13.7	-15.0	-14.1	-12.6	-13.1	-13.3	-10.4	-5.7	-5.5
-8.2	-8.8	-8.3	-6.4	-5.4	-5.3	-8.6	-10.2	-10.7	-11.8	-13.3	-10.1	-8.4	-7.3	-7.2	-8.5	-8.7	-9.5	-11.0	-10.4	-9.0	-9.1	-8.9	-9.0	-11.7	-12.0	-11.7	-12.0	-12.6	-12.4	-10.3	-9.0	-9.5	-10.3	-10.3	-9.3
-4.8	-4.1	-4.4	-4.0	-4.2	-3.6	-3.5	-4.2	-4.3	-4.1	-4.0	-3.6	-4.8	-5.0	-4.1	-3.5	-3.5	-4.8	-5.6	-6.4	-6.2	-5.8	-5.7	-5.6	-6.0	-6.2	-5.5	-5.2	-5.7	-6.6	-6.5	-6.2	-5.8	-5.1	-4.7	-4.6
-1.2	-.9	-.6	-.7	-.9	-1.2	-1.4	-1.4	-1.0	-.9	-.5	-1.2	-1.4	-1.3	-1.6	-1.5	-1.0	-1.1	-.8	-.9	-1.1	-.8	-.7	-1.0	-1.3	-1.0	-1.1	-.8	-.8	-1.0	-1.3	-1.4	-1.7	-2.0	-1.8	-1.3
1.1	1.3	1.4	1.0	1.0	1.0	1.1	1.0	1.1	1.0	.8	.5	.7	1.0	1.3	1.5	1.5	1.8	2.5	2.9	2.8	2.6	2.7	2.4	2.4	2.4	2.4	1.9	1.6	1.4	1.2	1.1	1.2	1.3	1.3	1.4
4.2	4.1	4.1	4.0	3.6	3.3	2.9	2.9	2.8	2.8	3.0	3.7	3.2	3.0	3.3	3.8	4.2	4.9	5.1	5.4	5.5	5.8	7.1	8.6	7.1	5.7	7.1	8.2	7.8	6.5	6.9	7.8	6.2	5.1	4.6	4.5
7.6	6.8	6.4	7.2	8.2	8.1	7.9	7.8	8.2	7.9	7.1	7.7	6.0	5.5	5.4	7.3	10.3	15.2	18.7	19.3	18.1	19.5	22.3	24.2	18.3	18.7	23.8	25.3	26.8	25.3	25.5	25.2	22.3	19.3	11.5	8.0
11.5	10.8	10.3	11.1	11.5	12.2	13.5	16.0	16.6	14.8	12.7	11.7	12.2	12.8	14.1	16.2	18.3	20.6	22.6	24.4	26.1	27.1	27.7	28.4	28.5	27.9	28.4	29.4	29.2	28.1	26.2	23.7	21.1	18.6	14.0	12.1

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



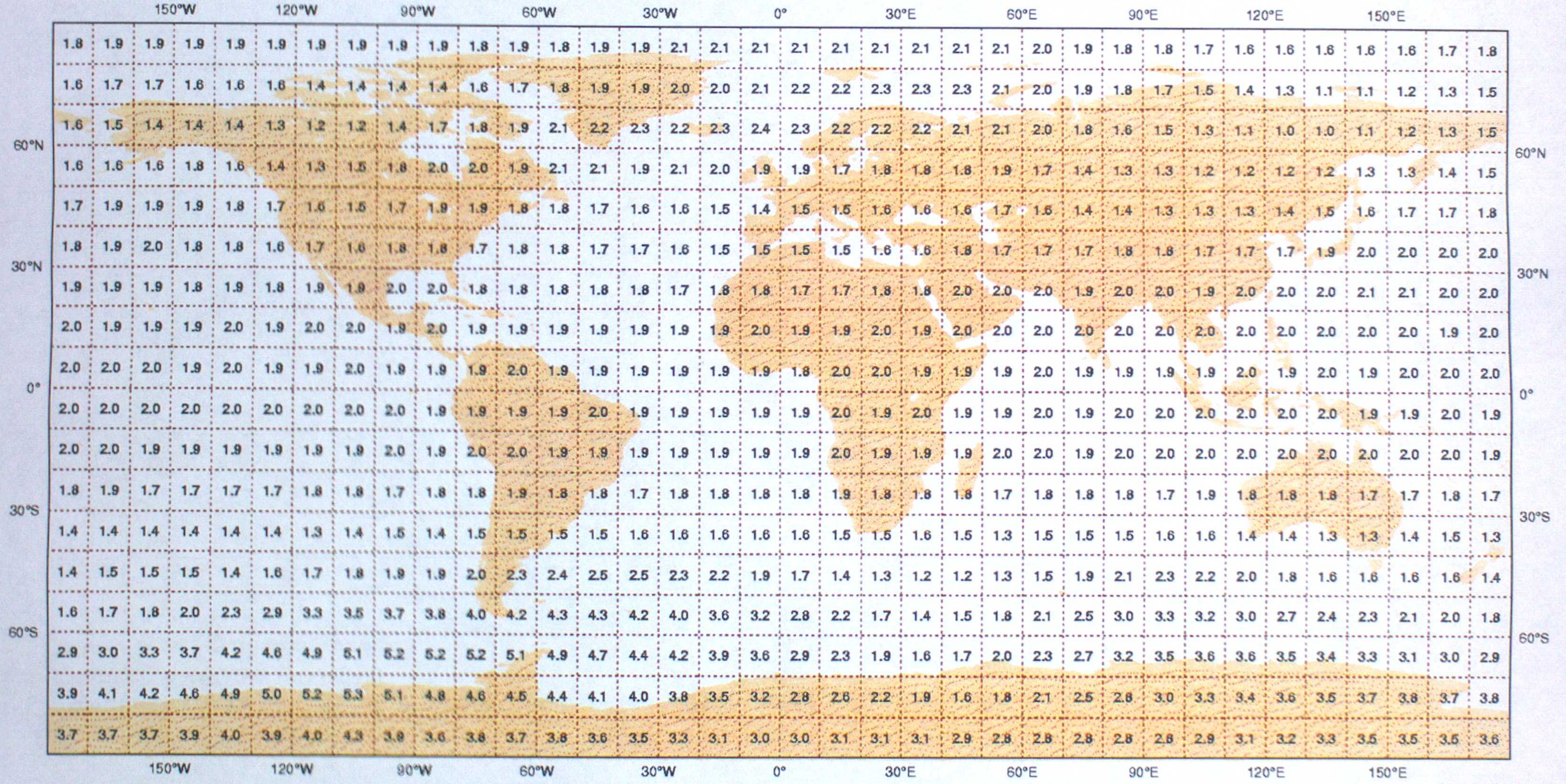
2.4	2.5	2.5	2.3	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.3	2.5	2.4	2.2	2.2	2.3	2.5	2.5	2.5	2.6	2.5	2.4	2.2	2.1	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.1	2.4	2.4
2.4	2.5	2.6	2.8	2.6	2.3	2.1	2.0	1.8	1.9	1.9	2.4	3.4	3.9	3.9	3.3	2.5	2.4	2.3	2.5	2.6	2.5	2.3	2.1	2.0	2.0	2.1	2.3	2.4	2.1	2.0	2.1	2.0	2.0	2.1	2.2
2.7	2.8	2.8	2.7	2.4	2.3	2.6	2.7	2.5	2.6	2.5	2.7	3.0	4.2	4.7	3.2	3.0	2.8	2.8	3.2	3.6	3.1	2.7	2.3	2.4	2.7	2.7	2.8	2.7	2.8	2.8	2.9	3.3	3.2	3.1	2.8
3.4	3.5	3.3	3.3	3.4	3.7	3.8	3.9	3.6	3.3	3.4	3.5	3.6	3.6	3.6	3.4	3.1	3.2	3.4	3.6	3.3	2.9	3.2	2.8	3.0	3.2	3.4	3.1	3.4	3.2	3.1	3.1	3.2	3.1	3.3	3.4
4.0	4.0	4.0	4.1	5.1	5.2	4.1	4.0	4.1	4.4	4.4	4.1	4.3	4.2	4.0	3.8	3.7	3.6	4.0	3.8	3.8	3.9	4.1	4.4	4.2	3.6	4.1	4.2	3.9	3.9	4.1	4.3	4.2	4.0	4.3	4.2
4.6	3.9	4.2	4.2	4.2	4.7	5.3	4.1	4.1	4.8	4.8	4.5	4.1	4.5	4.0	3.8	4.2	4.3	4.1	4.1	4.1	4.7	4.9	4.6	5.3	6.2	4.1	3.0	3.4	4.1	4.5	5.2	5.1	4.8	4.5	4.2
5.4	4.6	5.1	4.4	3.8	4.3	4.4	4.7	5.5	5.2	4.8	4.6	4.7	4.1	4.4	4.6	4.7	3.9	3.9	4.1	4.0	4.7	5.0	4.8	5.0	5.5	6.1	4.7	4.1	4.3	4.7	5.1	4.5	5.4	4.5	5.3
4.9	4.5	4.7	4.9	4.9	5.6	5.8	4.1	4.8	4.7	4.1	3.6	3.8	4.4	4.5	4.4	4.2	3.9	4.3	5.1	5.3	4.2	4.1	5.0	5.6	5.7	4.6	4.8	4.8	4.6	4.7	3.8	3.9	5.1	4.8	4.6
3.7	4.1	4.3	4.8	4.7	4.7	4.9	4.5	3.7	3.2	2.6	4.1	3.6	3.8	3.8	4.1	3.9	3.6	3.3	3.7	2.8	3.8	4.2	3.9	3.1	2.6	3.0	3.0	3.3	3.6	3.6	3.8	3.7	3.4	2.9	3.7
4.5	4.7	4.6	3.8	3.5	3.4	3.5	4.0	3.7	4.4	2.8	3.4	3.9	4.6	4.1	4.0	3.6	3.6	3.9	3.1	3.5	4.0	4.3	3.9	3.4	3.4	4.8	5.9	5.3	4.7	4.7	5.1	3.8	2.5	2.7	4.0
5.3	4.7	5.2	5.2	4.9	4.3	2.8	3.2	3.5	4.4	6.3	5.1	5.0	5.0	4.3	3.7	3.7	3.8	4.0	4.9	5.6	5.7	4.3	4.0	4.5	4.5	4.4	4.8	4.0	3.3	3.5	4.0	4.4	6.8	6.5	5.4
5.3	5.4	5.6	5.5	4.9	4.9	4.9	4.4	4.4	4.0	3.9	4.3	5.2	5.7	5.7	5.9	4.8	4.2	4.7	5.5	4.9	5.6	5.5	4.9	4.5	3.8	3.8	3.8	4.4	4.9	5.2	5.4	5.1	5.7	5.2	5.3
4.3	4.2	4.2	4.4	4.0	4.3	4.2	4.2	4.6	4.1	4.2	4.1	4.7	5.3	4.8	4.3	4.6	4.7	4.5	5.1	5.1	4.7	4.3	4.5	5.0	4.7	4.1	4.1	4.5	4.5	4.4	4.5	4.3	4.8	4.7	4.4
3.1	3.3	3.2	3.1	3.3	3.5	3.7	3.8	3.3	3.3	3.5	3.5	3.6	3.8	3.8	3.8	3.7	3.7	3.7	3.9	3.8	3.7	3.6	3.5	3.7	3.5	3.4	3.2	3.0	3.2	3.4	3.3	3.6	3.9	3.7	3.4
2.5	2.6	2.8	2.7	2.7	2.9	2.8	3.0	2.7	2.8	3.2	3.4	3.0	3.1	3.0	3.0	3.1	3.1	2.9	2.7	2.7	2.7	2.9	2.9	2.7	2.8	2.7	2.6	2.6	2.8	3.0	2.9	2.9	2.8	2.7	2.6
2.4	2.3	2.2	2.4	2.6	2.3	2.5	2.6	2.6	2.8	2.9	3.0	2.7	2.6	2.5	2.3	2.4	2.4	2.4	2.5	2.4	2.5	3.9	5.6	4.4	2.8	4.6	6.0	6.2	5.2	6.0	6.5	4.7	3.5	2.5	2.6
2.1	2.3	2.5	3.3	4.1	4.1	4.2	4.7	4.8	4.6	3.6	2.8	2.3	2.4	2.6	3.5	4.5	5.4	6.7	7.6	8.1	7.1	6.2	4.7	6.0	6.2	5.2	4.2	4.5	4.7	3.9	3.1	3.9	4.0	4.7	2.2
5.8	5.6	5.4	5.1	5.0	4.8	4.5	4.5	4.2	3.9	4.4	4.7	4.9	4.9	4.9	4.4	4.2	4.1	4.3	4.7	5.2	5.1	4.6	4.4	4.5	4.8	4.7	4.0	3.5	3.0	2.8	3.1	3.8	4.7	6.1	6.0

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



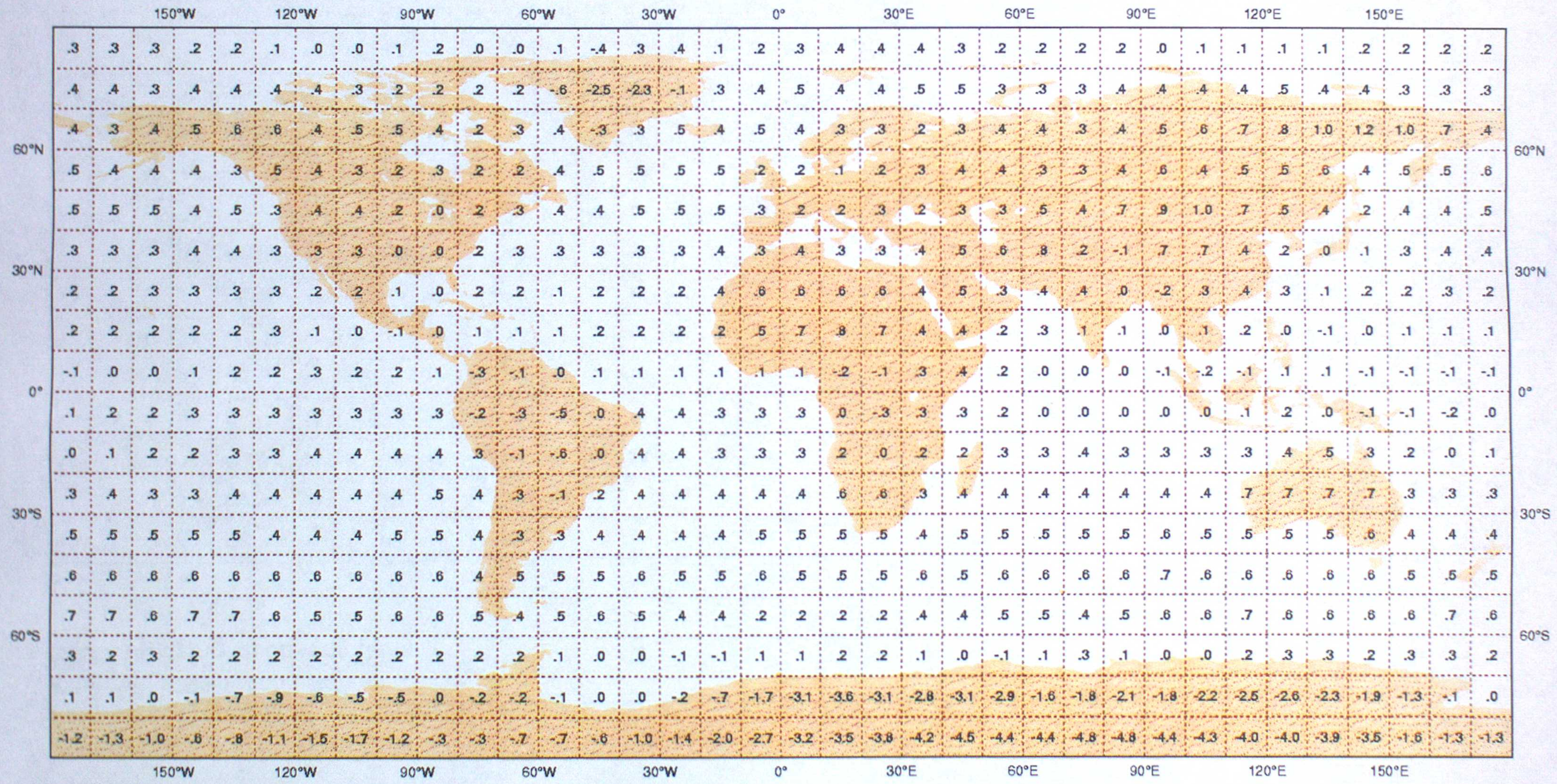
3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.4	3.6	3.9	3.8	4.0	4.1	4.2	4.2	4.2	4.2	4.3	4.3	4.4	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.3	4.2	4.1	4.0	3.9	3.7	3.5	3.3
1.1	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.1	2.5	3.0	3.5	3.7	3.4	3.3	3.4	3.6	3.7	3.8	3.9	3.9	3.8	3.7	3.6	3.4	3.3	3.1	3.0	2.8	2.5	2.2	1.8	1.5	1.3
-1.3	-1.2	-.9	-.6	-.2	.1	.4	.6	.6	.6	1.1	1.5	1.9	2.4	2.3	2.3	2.2	2.3	2.5	2.6	2.7	3.0	3.0	2.7	2.2	1.9	1.9	1.8	1.6	1.1	.7	.2	-.3	-.7	-1.1	-1.3
-2.0	-1.6	-1.3	-.9	-.7	-.1	.2	.2	.3	.2	.5	.7	.9	1.0	1.0	.8	.5	.5	.8	1.0	1.1	1.4	1.2	1.0	.8	.9	1.0	.9	.7	.2	-.4	-.9	-1.5	-1.7	-1.8	-2.0
-1.1	-.7	-.5	-.4	-.4	-.3	.0	-.1	-.1	-.3	-.3	-.2	-.2	-.2	-.1	-.3	-.6	-.6	-.3	-.3	-.1	.1	.2	.0	.1	.2	.2	.1	-.1	-.4	-.8	-1.2	-1.3	-1.4	-1.4	-1.0
-1.1	-1.0	-.8	-.7	-.7	-1.0	-1.1	-1.1	-1.2	-1.1	-1.1	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-.9	-.8	-.8	-.6	-.8	-.6	-.7	-.7	-.5	-.7	-.8	-1.1	-1.1	-1.4	-1.9	-1.8	-1.8	-1.8	-1.1
-1.7	-1.6	-1.4	-1.4	-1.6	-1.9	-2.0	-2.1	-2.3	-2.0	-1.9	-1.6	-1.7	-1.7	-1.4	-1.4	-1.3	-1.2	-1.2	-1.3	-1.1	-1.5	-1.5	-1.7	-1.7	-1.9	-2.1	-2.1	-2.3	-2.3	-2.6	-2.6	-2.4	-2.3	-2.3	-1.9
-2.1	-2.1	-2.1	-2.2	-2.3	-2.3	-2.5	-2.4	-2.5	-2.3	-2.2	-2.0	-2.0	-2.0	-1.8	-1.8	-1.9	-1.8	-2.0	-2.1	-2.0	-2.1	-2.2	-2.3	-2.3	-2.3	-2.4	-2.4	-2.6	-2.5	-2.6	-2.6	-2.6	-2.5	-2.5	-2.4
-2.2	-2.4	-2.4	-2.5	-2.4	-2.4	-2.5	-2.3	-2.4	-2.2	-2.2	-2.2	-2.2	-2.1	-2.0	-2.0	-2.1	-2.1	-2.1	-2.0	-2.0	-2.1	-2.2	-2.1	-2.1	-2.1	-2.2	-2.2	-2.2	-2.3	-2.3	-2.4	-2.5	-2.4	-2.5	-2.5
-2.2	-2.5	-2.6	-2.6	-2.5	-2.5	-2.6	-2.4	-2.4	-2.3	-2.1	-2.2	-2.1	-2.2	-2.2	-2.1	-2.2	-2.2	-2.3	-1.9	-2.1	-2.2	-2.3	-2.1	-2.1	-2.1	-2.2	-2.3	-2.3	-2.4	-2.5	-2.3	-2.4	-2.4	-2.4	-2.6
-2.0	-2.1	-2.1	-2.1	-2.1	-2.0	-2.1	-2.0	-2.0	-2.2	-2.0	-2.2	-2.0	-2.0	-1.9	-1.8	-1.7	-1.9	-2.0	-1.6	-1.9	-1.8	-2.1	-2.0	-2.0	-2.2	-2.3	-2.4	-2.3	-2.4	-2.3	-2.4	-2.4	-2.4	-2.3	-2.4
-1.5	-1.3	-1.3	-1.2	-1.2	-1.0	-1.0	-.9	-.9	-1.2	-1.2	-1.4	-1.3	-1.3	-1.4	-1.3	-1.2	-1.4	-1.4	-1.2	-1.2	-1.2	-1.4	-1.2	-1.4	-1.4	-1.5	-1.7	-1.6	-1.7	-1.5	-1.4	-1.5	-1.6	-1.6	-1.7
-1.3	-.9	-1.1	-1.0	-.9	-.7	-.6	-.5	-.5	-.6	-.4	-.6	-.6	-.7	-.7	-.6	-.5	-.8	-.7	-.7	-.8	-.8	-.8	-.9	-1.1	-1.1	-1.2	-1.5	-1.6	-1.6	-1.4	-1.3	-1.4	-1.5	-1.6	-1.6
-2.9	-2.7	-2.7	-2.6	-2.3	-1.9	-1.7	-1.6	-1.3	-1.1	-.8	-.6	-.4	-.1	.0	.2	.2	.1	.1	-.1	-.4	-.6	-.7	-1.1	-1.5	-1.9	-2.4	-2.9	-3.1	-3.2	-3.1	-2.9	-2.8	-2.8	-2.9	-2.9
-4.7	-4.6	-4.4	-4.2	-3.7	-3.1	-2.6	-2.4	-1.9	-1.2	-.6	-.1	.5	1.0	1.5	1.8	1.9	2.0	2.0	1.9	1.7	1.1	.5	-.3	-1.0	-1.9	-2.7	-3.3	-3.9	-4.2	-4.4	-4.4	-4.4	-4.5	-4.6	-4.7
-4.3	-4.2	-4.1	-3.8	-3.3	-2.6	-1.8	-1.0	-.3	.5	1.3	2.2	2.9	3.4	4.0	4.5	4.9	5.1	5.2	5.1	5.0	4.6	4.1	3.3	2.3	1.1	.3	-.5	-1.3	-2.0	-2.5	-2.9	-3.2	-3.6	-3.9	-4.2
-.7	-.7	-.8	-.4	.0	.2	.8	1.9	2.4	2.8	3.6	4.2	4.7	5.2	5.7	6.3	7.0	7.4	8.0	8.1	7.9	7.6	7.3	6.9	5.8	5.1	4.5	3.3	3.0	2.3	1.5	1.0	.4	.4	-.1	-.6
3.1	3.2	2.9	3.1	3.2	3.5	3.9	4.8	4.2	4.3	4.9	5.4	5.8	6.2	6.5	6.9	7.3	7.7	8.1	8.6	8.8	8.3	7.6	7.3	7.2	7.0	6.8	6.8	6.5	6.1	5.5	5.1	4.5	3.9	3.3	2.8

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



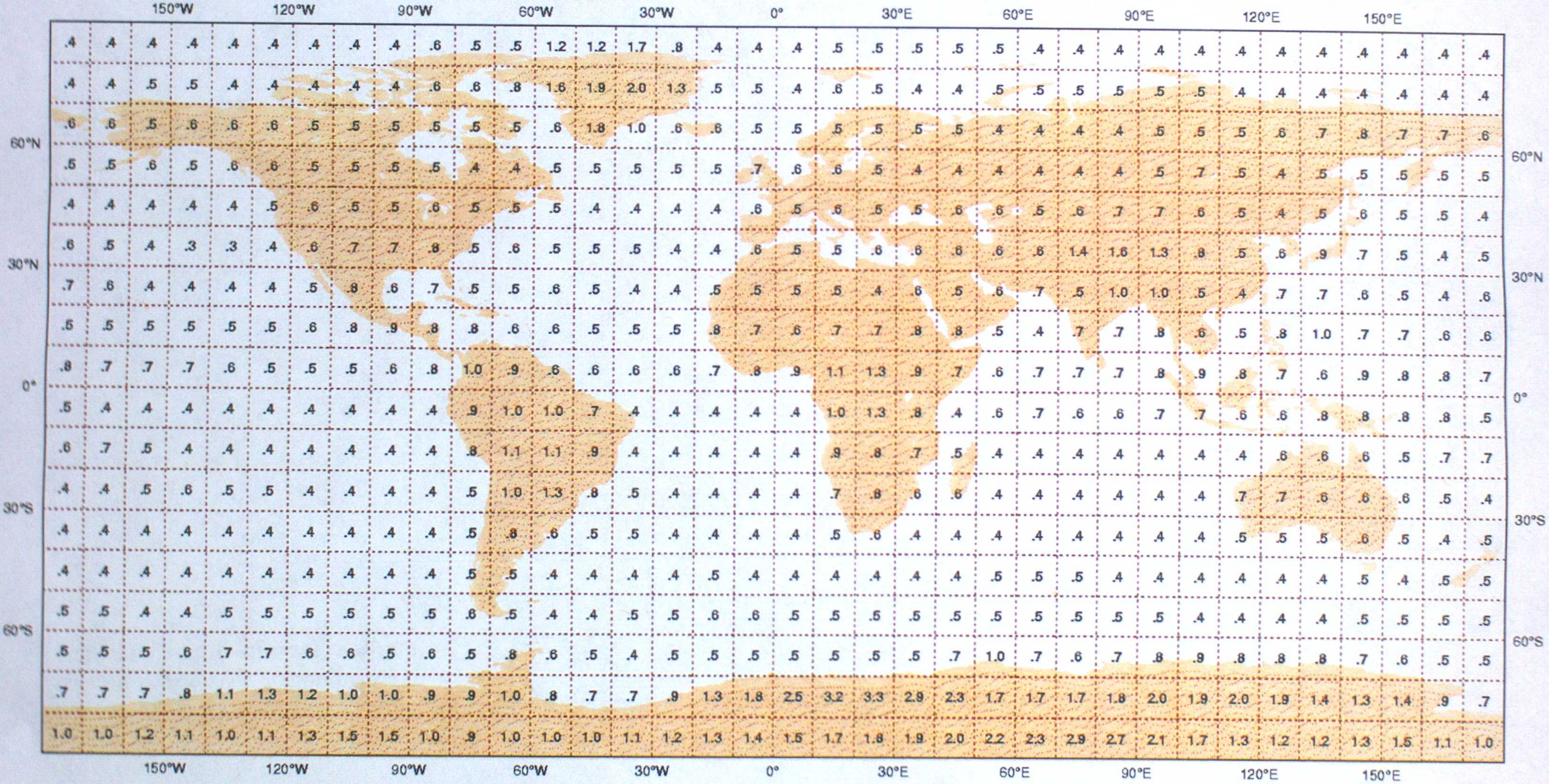
1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.8
1.6	1.7	1.7	1.6	1.6	1.6	1.4	1.4	1.4	1.4	1.6	1.7	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.3	2.3	2.3	2.1	2.0	1.9	1.8	1.7	1.5	1.4	1.3	1.1	1.1	1.2	1.3	1.5
1.6	1.5	1.4	1.4	1.4	1.3	1.2	1.2	1.4	1.7	1.8	1.9	2.1	2.2	2.3	2.2	2.3	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.0	1.8	1.6	1.5	1.3	1.1	1.0	1.0	1.1	1.2	1.3	1.5
1.6	1.6	1.6	1.8	1.6	1.4	1.3	1.5	1.8	2.0	2.0	1.9	2.1	2.1	1.9	2.1	2.0	1.9	1.9	1.7	1.8	1.8	1.8	1.9	1.7	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.4	1.5
1.7	1.9	1.9	1.9	1.8	1.7	1.6	1.5	1.7	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.5	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.6	1.4	1.4	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.8	1.9	2.0	1.8	1.8	1.6	1.7	1.6	1.8	1.8	1.7	1.8	1.8	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.8	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.9	2.0	2.0	2.0	2.0
1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9	2.0	2.0	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.0
2.0	1.9	1.9	1.9	2.0	1.9	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0
2.0	2.0	2.0	1.9	2.0	1.9	1.9	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.8	2.0	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.0	2.0	2.0
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9
2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9
1.8	1.9	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.8	1.8	1.9	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.7	1.9	1.8	1.8	1.8	1.7	1.7	1.8	1.7
1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.5	1.3	1.5	1.5	1.5	1.6	1.6	1.4	1.4	1.3	1.3	1.4	1.5	1.3
1.4	1.5	1.5	1.5	1.4	1.6	1.7	1.8	1.9	1.9	2.0	2.3	2.4	2.5	2.5	2.3	2.2	1.9	1.7	1.4	1.3	1.2	1.2	1.3	1.5	1.9	2.1	2.3	2.2	2.0	1.8	1.6	1.6	1.6	1.6	1.4
1.6	1.7	1.8	2.0	2.3	2.9	3.3	3.5	3.7	3.8	4.0	4.2	4.3	4.3	4.2	4.0	3.6	3.2	2.8	2.2	1.7	1.4	1.5	1.8	2.1	2.5	3.0	3.3	3.2	3.0	2.7	2.4	2.3	2.1	2.0	1.8
2.9	3.0	3.3	3.7	4.2	4.6	4.9	5.1	5.2	5.2	5.2	5.1	4.9	4.7	4.4	4.2	3.9	3.6	2.9	2.3	1.9	1.6	1.7	2.0	2.3	2.7	3.2	3.5	3.6	3.6	3.5	3.4	3.3	3.1	3.0	2.9
3.9	4.1	4.2	4.6	4.9	5.0	5.2	5.3	5.1	4.8	4.6	4.5	4.4	4.1	4.0	3.8	3.5	3.2	2.8	2.6	2.2	1.9	1.6	1.8	2.1	2.5	2.8	3.0	3.3	3.4	3.6	3.5	3.7	3.8	3.7	3.8
3.7	3.7	3.7	3.9	4.0	3.9	4.0	4.3	3.9	3.6	3.8	3.7	3.8	3.6	3.5	3.3	3.1	3.0	3.0	3.1	3.1	3.1	2.9	2.8	2.8	2.8	2.8	2.8	2.9	3.1	3.2	3.3	3.5	3.5	3.5	3.6

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



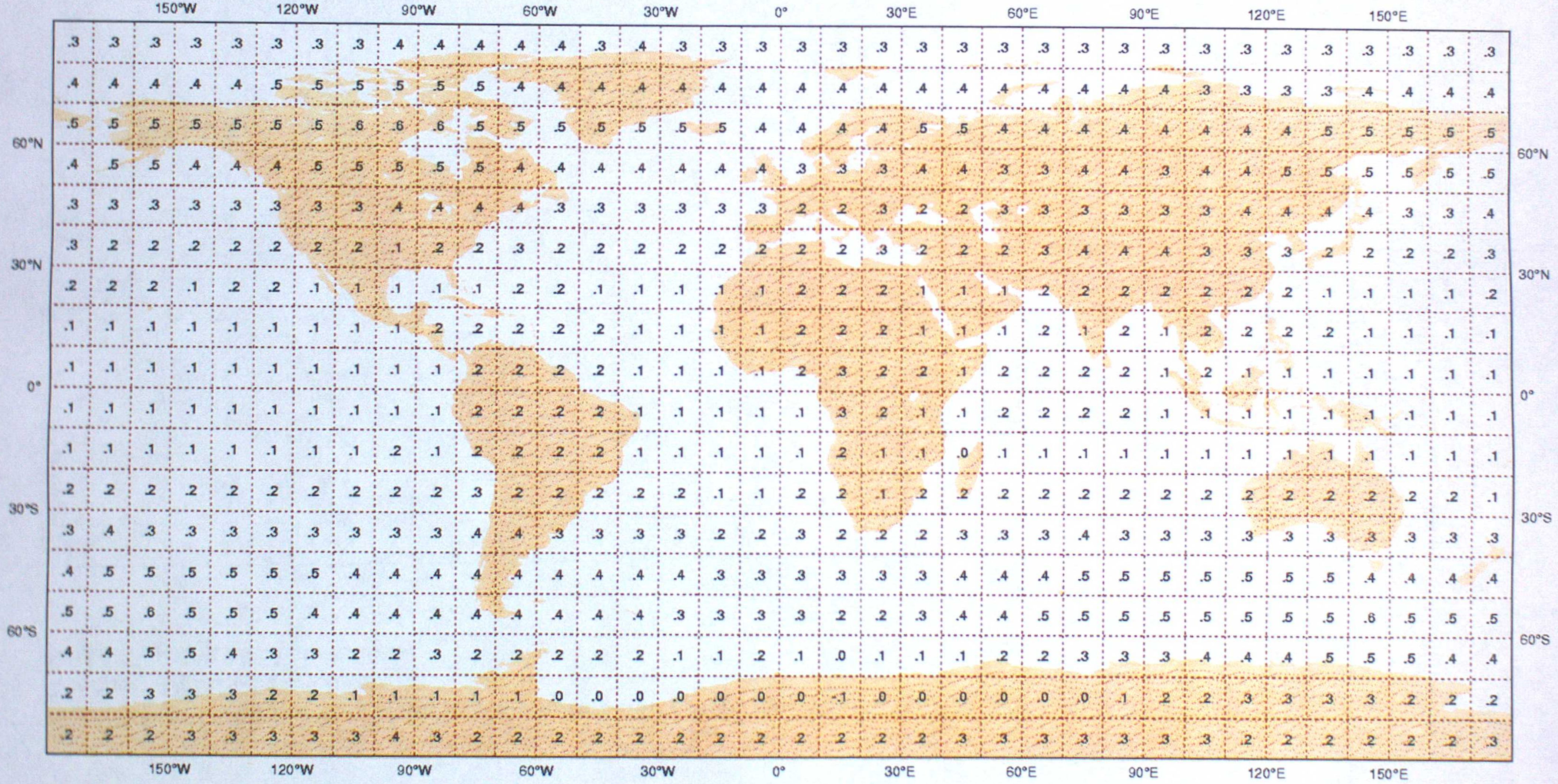
.3	.3	.3	.2	.2	.1	.0	.0	.1	.2	.0	.0	.1	-.4	.3	.4	.1	.2	.3	.4	.4	.4	.3	.2	.2	.2	.2	.0	.1	.1	.1	.1	.2	.2	.2	.2
.4	.4	.3	.4	.4	.4	.4	.3	.2	.2	.2	.2	-.6	-2.5	-2.3	-.1	.3	.4	.5	.4	.4	.5	.5	.3	.3	.3	.4	.4	.4	.4	.5	.4	.4	.3	.3	.3
.4	.3	.4	.5	.6	.6	.4	.5	.5	.4	.2	.3	.4	-.3	.3	.5	.4	.5	.4	.3	.3	.2	.3	.4	.4	.3	.4	.5	.6	.7	.8	1.0	1.2	1.0	.7	.4
.5	.4	.4	.4	.3	.5	.4	.3	.2	.3	.2	.2	.4	.5	.5	.5	.5	.2	.2	.1	.2	.3	.4	.4	.3	.3	.4	.6	.4	.5	.5	.6	.4	.5	.5	.6
.5	.5	.5	.4	.5	.3	.4	.4	.2	.0	.2	.3	.4	.4	.5	.5	.5	.3	.2	.2	.3	.2	.3	.3	.5	.4	.7	.9	1.0	.7	.5	.4	.2	.4	.4	.5
.3	.3	.3	.4	.4	.3	.3	.3	.0	.0	.2	.3	.3	.3	.3	.3	.4	.3	.4	.3	.3	.4	.5	.6	.8	.2	-.1	.7	.7	.4	.2	.0	.1	.3	.4	.4
.2	.2	.3	.3	.3	.3	.2	.2	.1	.0	.2	.2	.1	.2	.2	.2	.4	.6	.6	.6	.6	.4	.5	.3	.4	.4	.0	-.2	.3	.4	.3	.1	.2	.2	.3	.2
.2	.2	.2	.2	.2	.3	.1	.0	-.1	.0	.1	.1	.1	.2	.2	.2	.2	.5	.7	.8	.7	.4	.4	.2	.3	.1	.1	.0	.1	.2	.0	-.1	.0	.1	.1	.1
-.1	.0	.0	.1	.2	.2	.3	.2	.2	.1	-.3	-.1	.0	.1	.1	.1	.1	.1	.1	-.2	-.1	.3	.4	.2	.0	.0	.0	-.1	-.2	-.1	.1	.1	-.1	-.1	-.1	-.1
.1	.2	.2	.3	.3	.3	.3	.3	.3	.3	-.2	-.3	-.5	.0	.4	.4	.3	.3	.3	.0	-.3	.3	.3	.2	.0	.0	.0	.0	.0	.1	.2	.0	-.1	-.1	-.2	.0
.0	.1	.2	.2	.3	.3	.4	.4	.4	.4	.3	-.1	-.6	.0	.4	.4	.3	.3	.3	.2	.0	.2	.2	.3	.3	.4	.3	.3	.3	.3	.4	.5	.3	.2	.0	.1
.3	.4	.3	.3	.4	.4	.4	.4	.4	.5	.4	.3	-.1	.2	.4	.4	.4	.4	.4	.6	.6	.3	.4	.4	.4	.4	.4	.4	.4	.7	.7	.7	.7	.3	.3	.3
.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.4	.3	.3	.4	.4	.4	.4	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.4	.4	.4
.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.4	.5	.5	.5	.6	.5	.5	.6	.5	.5	.5	.6	.5	.6	.6	.6	.6	.7	.6	.6	.6	.6	.6	.5	.5	.5
.7	.7	.6	.7	.7	.6	.5	.5	.6	.6	.5	.4	.5	.6	.5	.4	.4	.2	.2	.2	.2	.4	.4	.5	.5	.4	.5	.6	.6	.7	.6	.6	.6	.6	.7	.6
.3	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.0	.0	-.1	-.1	.1	.1	.2	.2	.1	.0	-.1	.1	.3	.1	.0	.0	.2	.3	.3	.2	.3	.3	.2
.1	.1	.0	-.1	-.7	-.9	-.6	-.5	-.5	.0	-.2	-.2	-.1	.0	.0	-.2	-.7	-1.7	-3.1	-3.6	-3.1	-2.8	-3.1	-2.9	-1.6	-1.8	-2.1	-1.8	-2.2	-2.5	-2.6	-2.3	-1.9	-1.3	-.1	.0
-1.2	-1.3	-1.0	-.6	-.8	-1.1	-1.5	-1.7	-1.2	-.3	-.3	-.7	-.7	-.6	-1.0	-1.4	-2.0	-2.7	-3.2	-3.5	-3.8	-4.2	-4.5	-4.4	-4.4	-4.8	-4.8	-4.4	-4.3	-4.0	-4.0	-3.9	-3.5	-1.6	-1.3	-1.3

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.4	.4	.4	.4	.4	.4	.4	.4	.4	.6	.5	.5	1.2	1.2	1.7	.8	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.5	.5	.4	.4	.4	.4	.4	.6	.6	.8	1.6	1.9	2.0	1.3	.5	.5	.4	.6	.5	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4
.6	.6	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.6	1.8	1.0	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.6	.7	.8	.7	.7	.6
.5	.5	.6	.5	.6	.6	.5	.5	.5	.5	.4	.4	.5	.5	.5	.5	.5	.7	.6	.6	.5	.4	.4	.4	.4	.4	.4	.5	.7	.5	.4	.5	.5	.5	.5	.5
.4	.4	.4	.4	.4	.5	.6	.5	.5	.6	.5	.5	.5	.4	.4	.4	.4	.6	.5	.6	.5	.5	.6	.6	.5	.6	.7	.7	.6	.5	.4	.5	.6	.5	.5	.4
.6	.5	.4	.3	.3	.4	.6	.7	.7	.8	.5	.6	.5	.5	.5	.4	.4	.6	.5	.5	.6	.6	.6	.6	.6	1.4	1.6	1.3	.8	.5	.6	.9	.7	.5	.4	.5
.7	.6	.4	.4	.4	.4	.5	.8	.6	.7	.5	.5	.6	.5	.4	.4	.5	.5	.5	.5	.4	.6	.5	.6	.7	.5	1.0	1.0	.5	.4	.7	.7	.6	.5	.4	.6
.5	.5	.5	.5	.5	.5	.6	.8	.9	.8	.8	.6	.6	.5	.5	.5	.8	.7	.6	.7	.7	.8	.8	.5	.4	.7	.7	.8	.6	.5	.8	1.0	.7	.7	.6	.6
.8	.7	.7	.7	.6	.5	.5	.5	.6	.8	1.0	.9	.6	.6	.6	.6	.7	.8	.9	1.1	1.3	.9	.7	.6	.7	.7	.7	.8	.9	.8	.7	.6	.9	.8	.8	.7
.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.9	1.0	1.0	.7	.4	.4	.4	.4	.4	1.0	1.3	.8	.4	.6	.7	.6	.6	.7	.7	.6	.6	.8	.8	.8	.8	.5
.6	.7	.5	.4	.4	.4	.4	.4	.4	.4	.8	1.1	1.1	.9	.4	.4	.4	.4	.4	.9	.8	.7	.5	.4	.4	.4	.4	.4	.4	.4	.6	.6	.6	.5	.7	.7
.4	.4	.5	.6	.5	.5	.4	.4	.4	.4	.5	1.0	1.3	.8	.5	.4	.4	.4	.4	.7	.8	.6	.6	.4	.4	.4	.4	.4	.4	.7	.7	.6	.6	.6	.5	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.8	.6	.5	.5	.4	.4	.4	.4	.5	.6	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.6	.5	.4	.5
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.4	.5	.4	.5	.5
.5	.5	.4	.4	.5	.5	.5	.5	.5	.5	.6	.5	.4	.4	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5
.5	.5	.5	.6	.7	.7	.6	.6	.5	.6	.5	.8	.6	.5	.4	.5	.5	.5	.5	.5	.5	.5	.7	1.0	.7	.6	.7	.8	.9	.8	.8	.8	.7	.6	.5	.5
.7	.7	.7	.8	1.1	1.3	1.2	1.0	1.0	.9	.9	1.0	.8	.7	.7	.9	1.3	1.8	2.5	3.2	3.3	2.9	2.3	1.7	1.7	1.7	1.8	2.0	1.9	2.0	1.9	1.4	1.3	1.4	.9	.7
1.0	1.0	1.2	1.1	1.0	1.1	1.3	1.5	1.5	1.0	.9	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.0	2.2	2.3	2.9	2.7	2.1	1.7	1.3	1.2	1.2	1.3	1.5	1.1	1.0

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4
.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5
.4	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.3	.3	.4	.4	.3	.4	.4	.5	.5	.5	.5	.5	.5
.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.2	.2	.3	.2	.2	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.4
.3	.2	.2	.2	.2	.2	.2	.2	.1	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.3	.4	.4	.4	.3	.3	.3	.2	.2	.2	.2	.3
.2	.2	.2	.1	.2	.2	.1	.1	.1	.1	.1	.2	.2	.1	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2
.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	.2	.1	.2	.1	.2	.2	.2	.2	.1	.1	.1	.1
.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.1	.1	.1	.1	.2	.3	.2	.2	.1	.2	.2	.2	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1
.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.3	.2	.1	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1
.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.2	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.1	.1	.2	.2	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1
.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.2	.2	.3	.2	.2	.2	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4
.5	.5	.6	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.2	.2	.3	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5
.4	.4	.5	.5	.4	.3	.3	.2	.2	.3	.2	.2	.2	.2	.2	.1	.1	.2	.1	.0	.1	.1	.1	.2	.2	.3	.3	.3	.4	.4	.4	.5	.5	.5	.4	.4
.2	.2	.3	.3	.3	.2	.2	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	-.1	.0	.0	.0	.0	.0	.0	.1	.2	.2	.3	.3	.3	.3	.2	.2	.2
.2	.2	.2	.3	.3	.3	.3	.3	.4	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.3

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

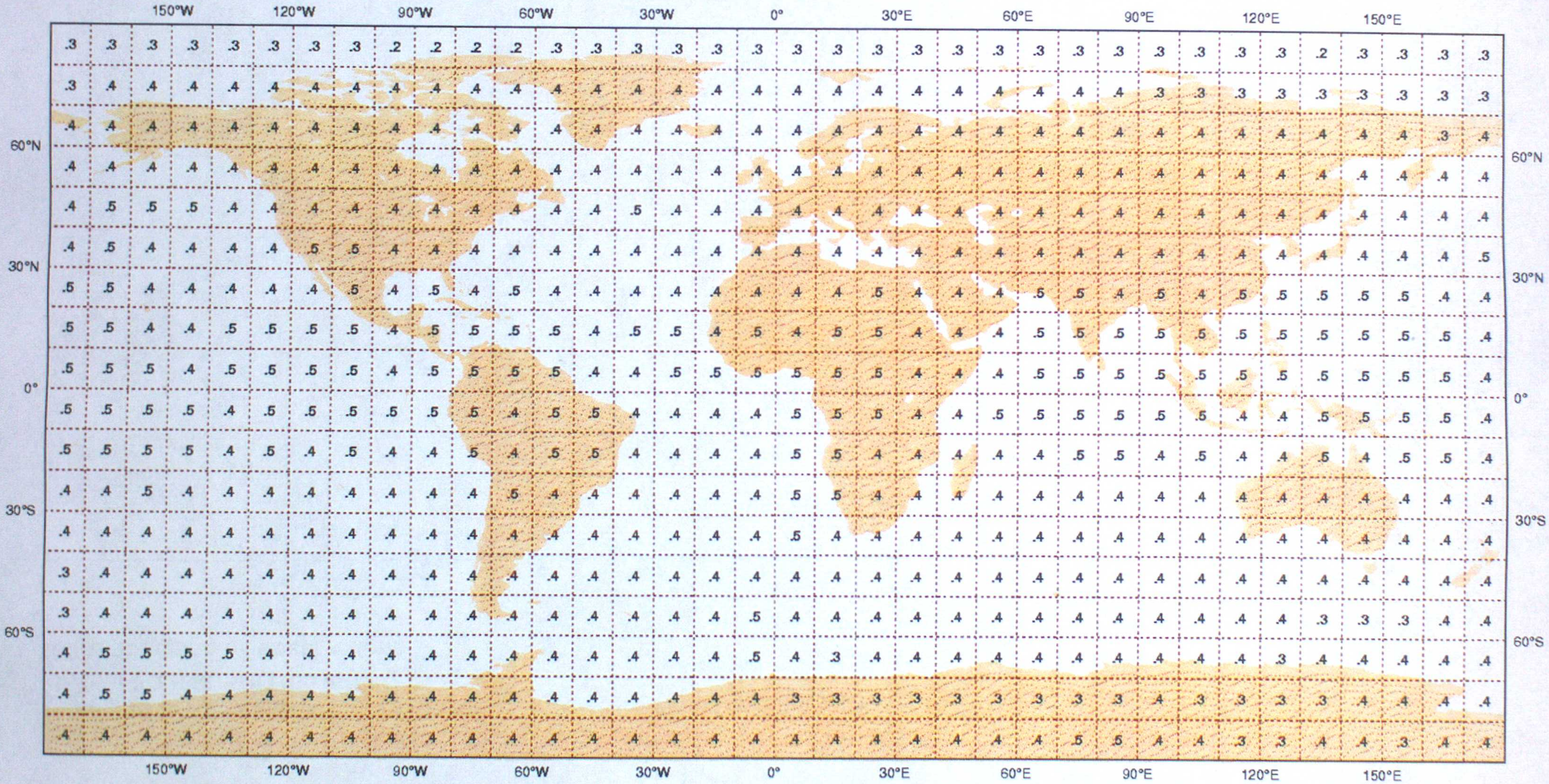
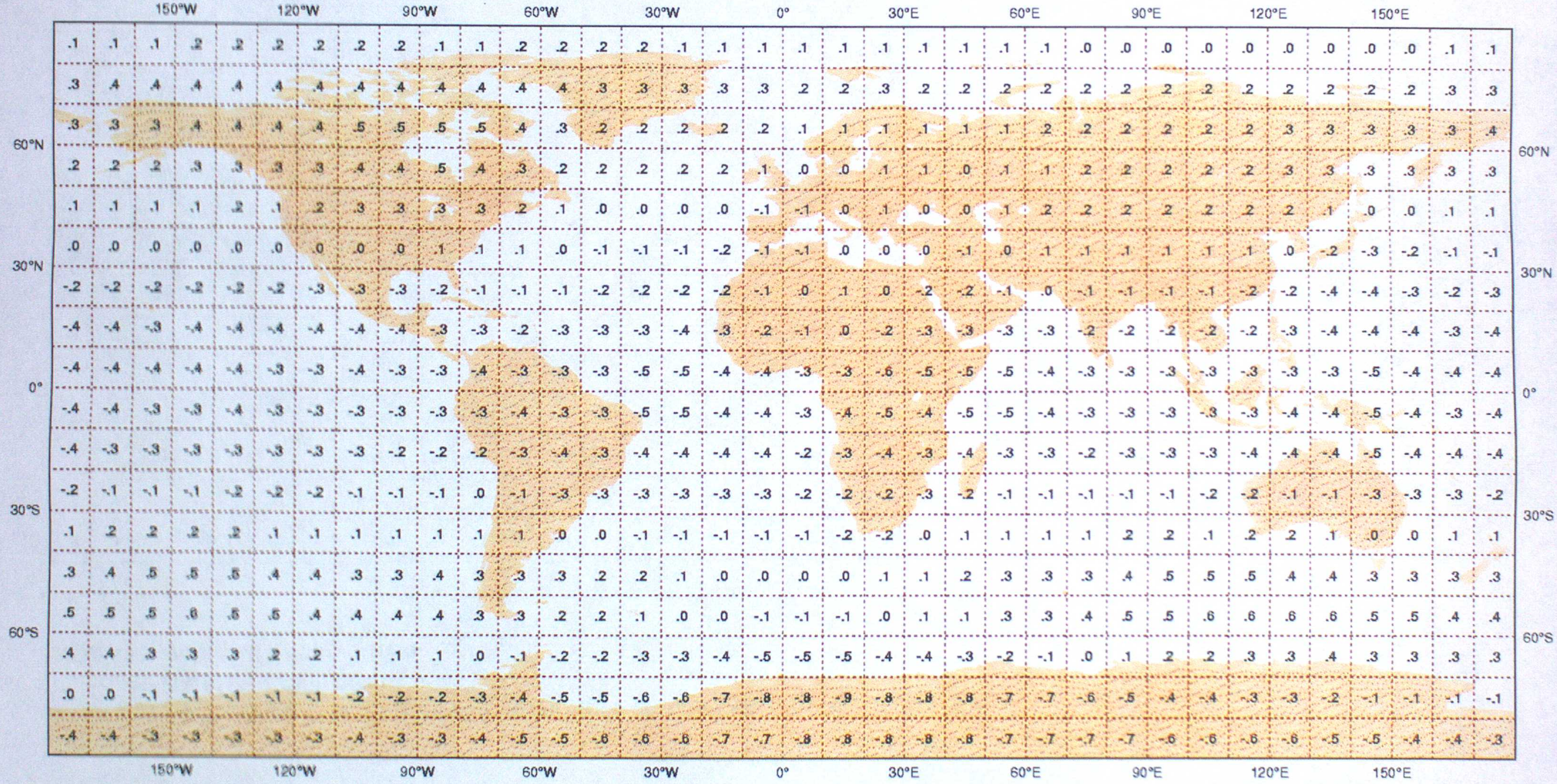

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .3 .3 .3 .3
.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .5 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5
.5 .5 .4 .4 .4 .4 .4 .5 .4 .5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .4 .4
.5 .5 .4 .4 .5 .5 .5 .5 .4 .5 .5 .5 .5 .4 .5 .5 .4 .5 .4 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4
.5 .5 .5 .4 .5 .5 .5 .5 .4 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4
.5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .5 .5 .4 .4 .4 .4 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .4
.5 .5 .5 .5 .4 .5 .4 .5 .4 .4 .5 .4 .5 .5 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .5 .5 .4 .5 .4 .4 .5 .4 .5 .5 .4
.4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4
.4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4
.4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .3 .3 .4 .4 .3 .4 .4

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



.1	.1	.1	.2	.2	.2	.2	.2	.2	.1	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1
.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3
.3	.3	.3	.4	.4	.4	.4	.5	.5	.5	.5	.4	.3	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.4
.2	.2	.2	.3	.3	.3	.3	.4	.4	.5	.4	.3	.2	.2	.2	.2	.2	.1	.0	.0	.1	.1	.0	.1	.1	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3
.1	.1	.1	.1	.2	.1	.2	.3	.3	.3	.3	.2	.1	.0	.0	.0	.0	-.1	-.1	.0	.1	.0	.0	.1	.2	.2	.2	.2	.2	.2	.2	.1	.0	.0	.1	.1
.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	-.1	-.1	-.1	-.2	-.1	-.1	.0	.0	.0	-.1	.0	.1	.1	.1	.1	.1	.1	.0	-.2	-.3	-.2	-.1	-.1
-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.2	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.1	.0	.1	.0	-.2	-.2	-.1	.0	-.1	-.1	-.1	-.1	-.2	-.2	-.4	-.4	-.3	-.2	-.3
-.4	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.2	-.3	-.3	-.3	-.4	-.3	-.2	-.1	.0	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.3	-.4	-.4	-.4	-.3	-.4
-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.3	-.3	-.4	-.3	-.3	-.3	-.5	-.5	-.4	-.4	-.3	-.3	-.6	-.5	-.5	-.5	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.5	-.4	-.4	-.4
-.4	-.4	-.3	-.3	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.3	-.3	-.5	-.5	-.4	-.4	-.3	-.4	-.5	-.4	-.5	-.5	-.4	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.4	-.3	-.4
-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.4	-.3	-.4	-.4	-.4	-.4	-.2	-.3	-.4	-.3	-.4	-.3	-.3	-.2	-.3	-.3	-.3	-.4	-.4	-.4	-.5	-.4	-.4	-.4
-.2	-.1	-.1	-.1	-.2	-.2	-.2	-.1	-.1	-.1	.0	-.1	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.2	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.1	-.1	-.3	-.3	-.3	-.2
.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.2	-.2	.0	.1	.1	.1	.1	.2	.2	.1	.2	.2	.1	.0	.0	.1	.1
.3	.4	.5	.5	.5	.4	.4	.3	.3	.4	.3	.3	.3	.2	.2	.1	.0	.0	.0	.0	.1	.1	.2	.3	.3	.3	.4	.5	.5	.5	.4	.4	.3	.3	.3	.3
.5	.5	.5	.6	.5	.5	.4	.4	.4	.4	.3	.3	.2	.2	.1	.0	.0	-.1	-.1	-.1	.0	.1	.1	.3	.3	.4	.5	.5	.6	.6	.6	.6	.5	.5	.4	.4
.4	.4	.3	.3	.3	.2	.2	.1	.1	.1	.0	-.1	-.2	-.2	-.3	-.3	-.4	-.5	-.5	-.5	-.4	-.4	-.3	-.2	-.1	.0	.1	.2	.2	.3	.3	.4	.3	.3	.3	.3
.0	.0	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.3	-.4	-.5	-.5	-.6	-.6	-.7	-.8	-.8	-.9	-.8	-.8	-.8	-.7	-.7	-.6	-.5	-.4	-.4	-.3	-.3	-.2	-.1	-.1	-.1	-.1
-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.4	-.3	-.3	-.4	-.5	-.5	-.6	-.6	-.6	-.7	-.7	-.8	-.8	-.8	-.8	-.8	-.7	-.7	-.7	-.7	-.6	-.6	-.6	-.6	-.5	-.5	-.4	-.4	-.3

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations

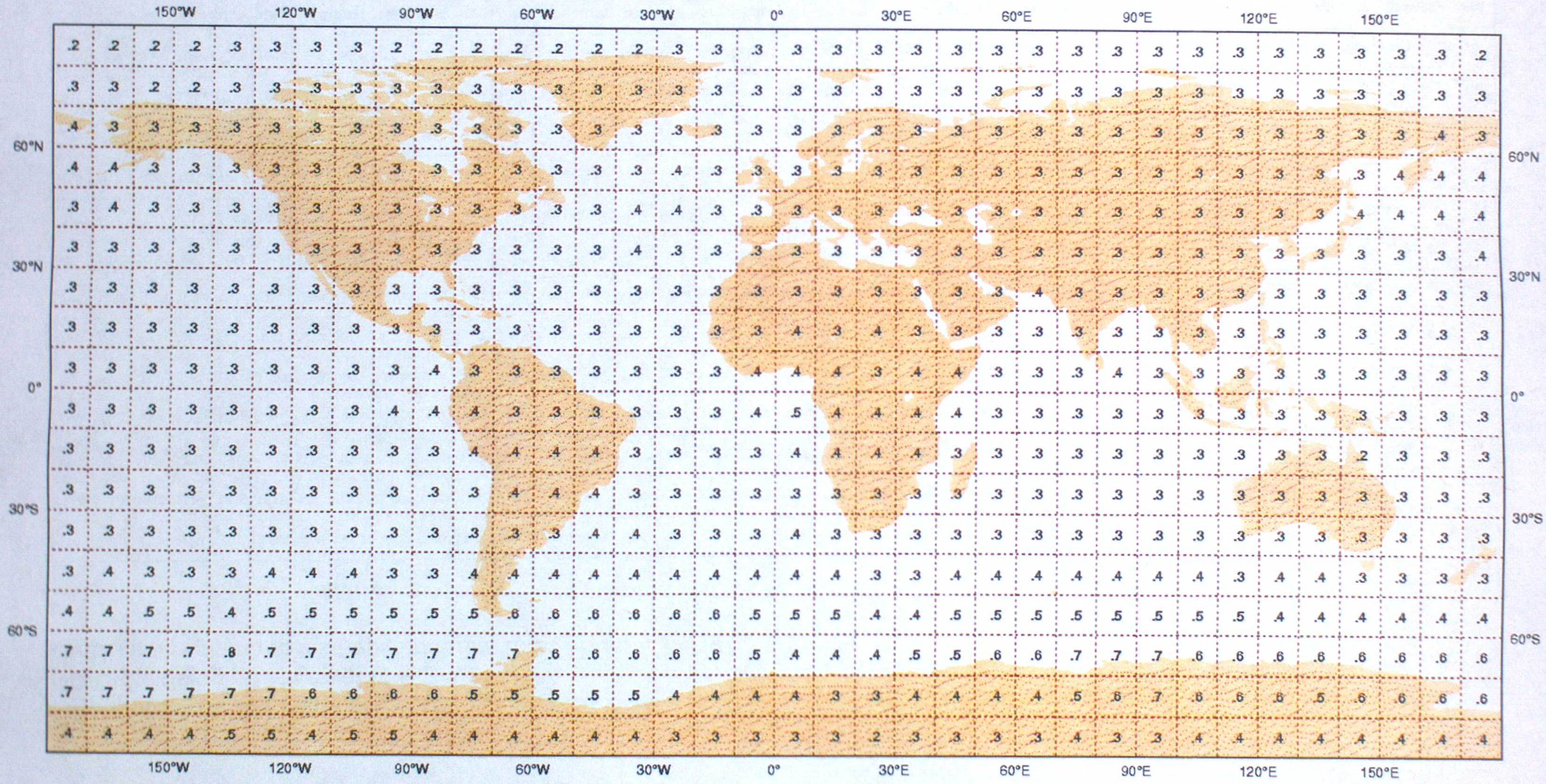
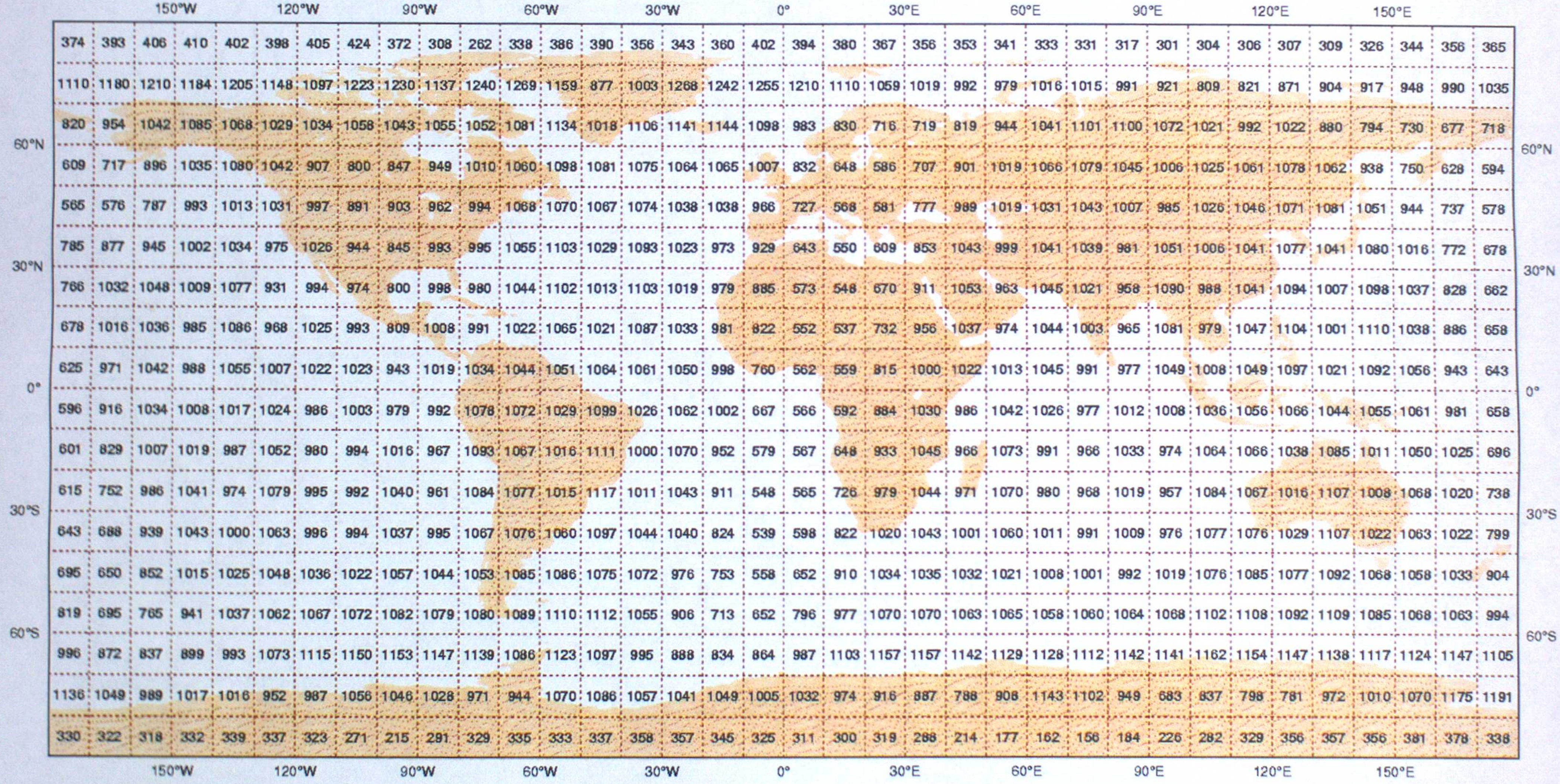
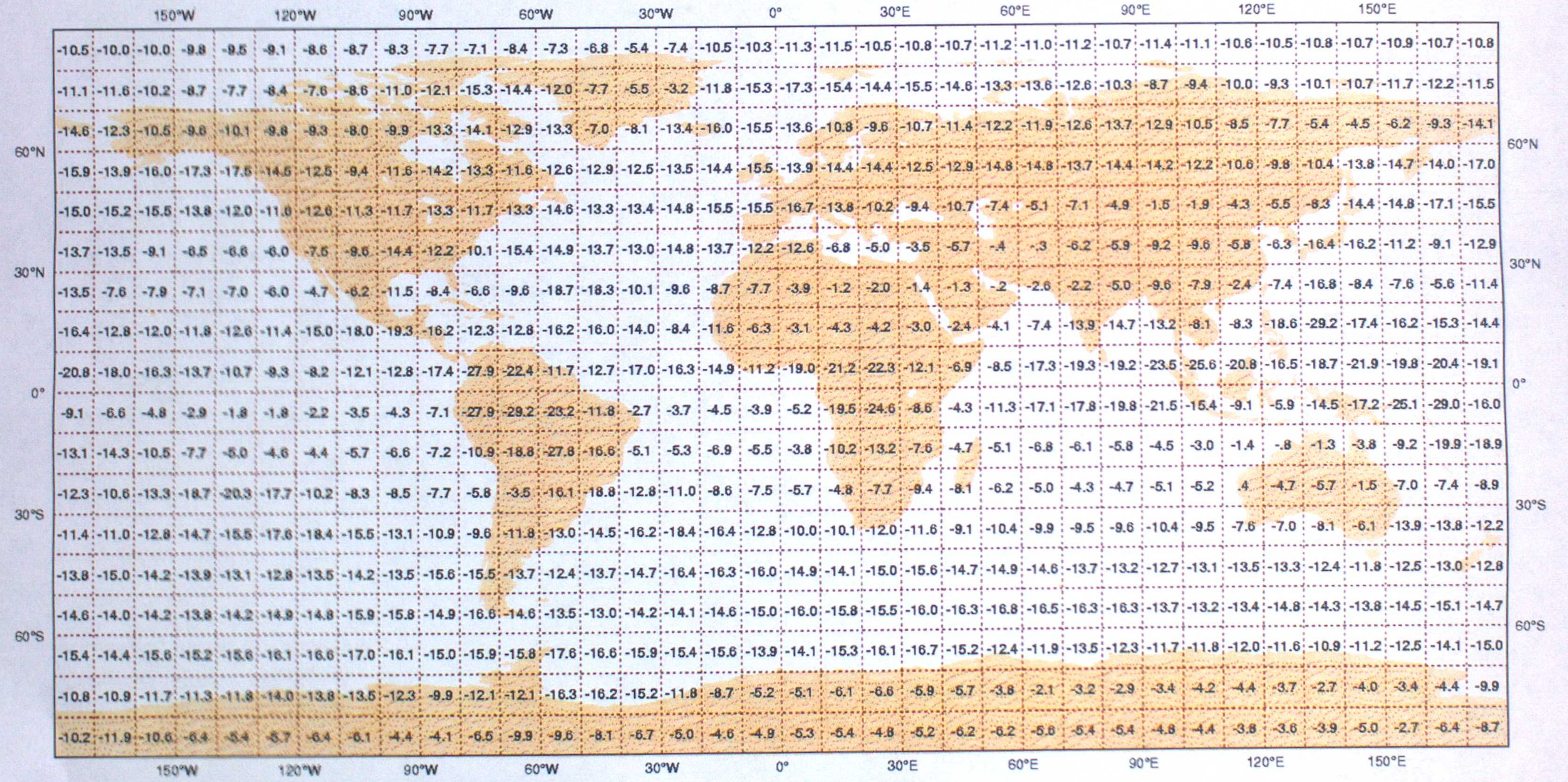

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2
.3 .3 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3
.4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4
.3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .4 .4 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .5 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .4 .3 .3 .3 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .3 .3 .3
.4 .4 .5 .5 .4 .5 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .6 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4
.7 .7 .7 .7 .8 .7 .7 .7 .7 .7 .7 .7 .6 .6 .6 .6 .6 .5 .4 .4 .4 .5 .5 .6 .6 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .6
.7 .7 .7 .7 .7 .7 .6 .6 .6 .6 .5 .5 .5 .5 .5 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .5 .6 .7 .6 .6 .6 .5 .6 .6 .6 .6
.4 .4 .4 .4 .5 .5 .4 .5 .5 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .2 .3 .3 .3 .3 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4

Figure 40. ATOVS mean daily count. OCTOBER 2004
NOAA16, using all observations
Global average number of observations in 24 hours = 586127



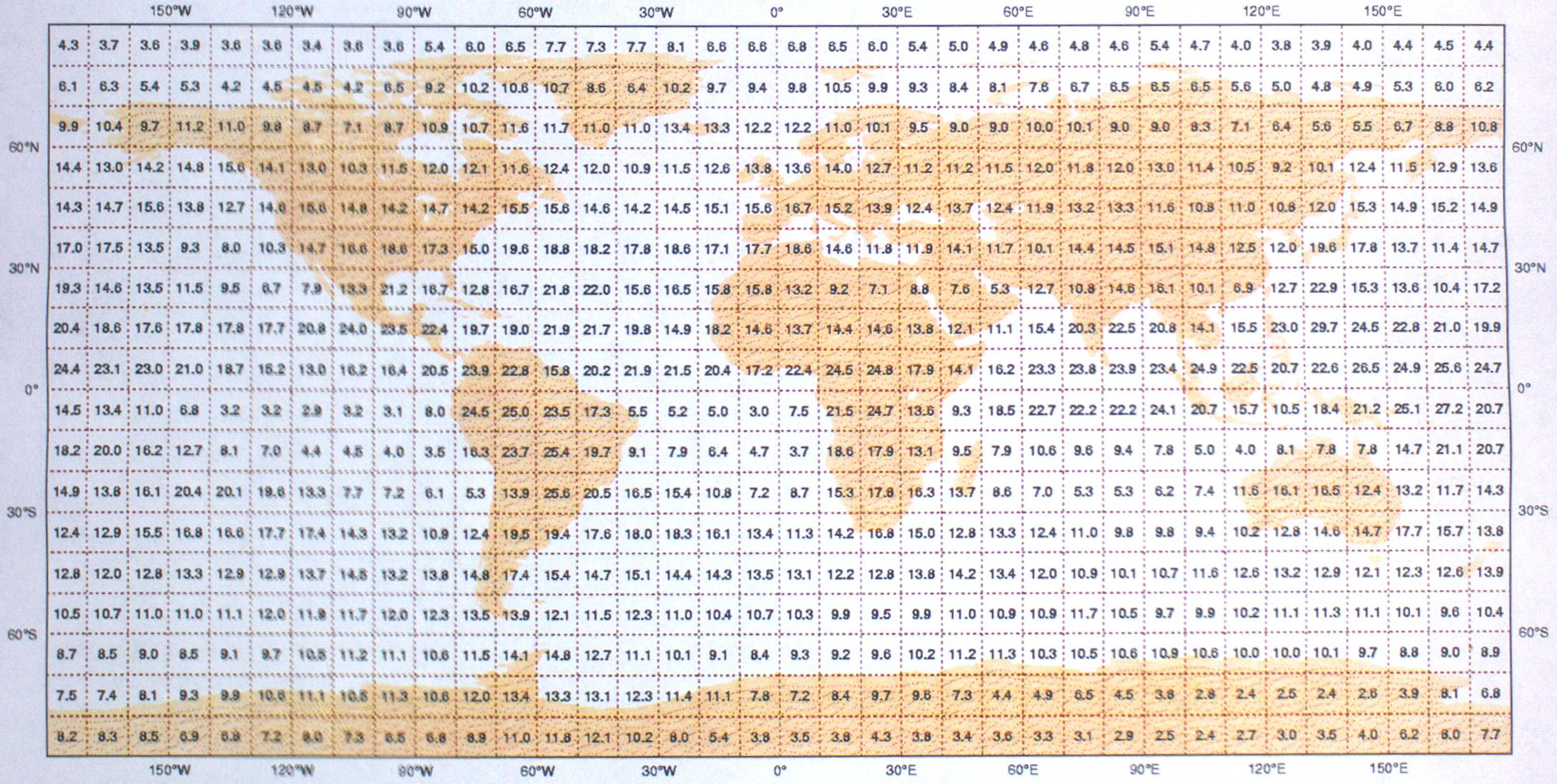
374	393	406	410	402	398	405	424	372	308	262	338	386	390	356	343	360	402	394	380	367	356	353	341	333	331	317	301	304	306	307	309	326	344	356	365
1110	1180	1210	1184	1205	1148	1097	1223	1230	1137	1240	1269	1159	877	1003	1268	1242	1255	1210	1110	1059	1019	992	979	1016	1015	991	921	809	821	871	904	917	948	990	1035
820	954	1042	1085	1068	1029	1034	1058	1043	1055	1052	1081	1134	1018	1106	1141	1144	1098	983	830	716	719	819	944	1041	1101	1100	1072	1021	992	1022	880	794	730	677	718
609	717	896	1035	1080	1042	907	800	847	949	1010	1060	1098	1081	1075	1064	1065	1007	832	648	586	707	901	1019	1066	1079	1045	1006	1025	1061	1078	1062	938	750	628	594
565	576	787	993	1013	1031	997	891	903	962	994	1068	1070	1067	1074	1038	1038	966	727	568	581	777	989	1019	1031	1043	1007	985	1026	1046	1071	1081	1051	944	737	578
785	877	945	1002	1034	975	1026	944	845	993	995	1055	1103	1029	1093	1023	973	929	643	550	609	853	1043	999	1041	1039	981	1051	1006	1041	1077	1041	1080	1016	772	678
766	1032	1048	1009	1077	931	994	974	800	998	980	1044	1102	1013	1103	1019	979	885	573	548	670	911	1053	963	1045	1021	958	1090	988	1041	1094	1007	1098	1037	828	662
678	1016	1036	985	1086	968	1025	993	809	1008	991	1022	1065	1021	1087	1033	981	822	552	537	732	956	1037	974	1044	1003	965	1081	979	1047	1104	1001	1110	1038	886	658
625	971	1042	988	1055	1007	1022	1023	943	1019	1034	1044	1051	1064	1061	1050	998	760	562	559	815	1000	1022	1013	1045	991	977	1049	1008	1049	1097	1021	1092	1056	943	643
596	916	1034	1008	1017	1024	986	1003	979	992	1078	1072	1029	1099	1026	1062	1002	667	566	592	884	1030	986	1042	1026	977	1012	1008	1036	1056	1066	1044	1055	1061	981	658
601	829	1007	1019	987	1052	980	994	1016	967	1093	1067	1016	1111	1000	1070	952	579	567	648	933	1045	966	1073	991	966	1033	974	1064	1066	1038	1085	1011	1050	1025	696
615	752	986	1041	974	1079	995	992	1040	961	1084	1077	1015	1117	1011	1043	911	548	565	726	979	1044	971	1070	980	968	1019	957	1084	1067	1016	1107	1008	1068	1020	738
643	688	939	1043	1000	1063	996	994	1037	995	1067	1076	1060	1097	1044	1040	824	539	598	822	1020	1043	1001	1060	1011	991	1009	976	1077	1076	1029	1107	1022	1063	1022	799
695	650	852	1015	1025	1048	1036	1022	1057	1044	1053	1085	1086	1075	1072	976	753	558	652	910	1034	1035	1032	1021	1008	1001	992	1019	1076	1085	1077	1092	1068	1058	1033	904
819	695	765	941	1037	1062	1067	1072	1082	1079	1080	1089	1110	1112	1055	906	713	652	796	977	1070	1070	1063	1065	1058	1060	1064	1068	1102	1108	1092	1109	1085	1068	1063	994
996	872	837	899	993	1073	1115	1150	1153	1147	1139	1086	1123	1097	995	888	834	864	987	1103	1157	1157	1142	1129	1128	1112	1142	1141	1162	1154	1147	1138	1117	1124	1147	1105
1136	1049	989	1017	1016	952	987	1056	1046	1028	971	944	1070	1086	1057	1041	1049	1005	1032	974	916	887	788	908	1143	1102	949	683	637	798	781	972	1010	1070	1175	1191
330	322	318	332	339	337	323	271	215	291	329	335	333	337	358	357	345	325	311	300	319	268	214	177	162	156	184	226	282	329	356	357	356	381	378	338

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS8 (Surface)
NOAA16, using all observations



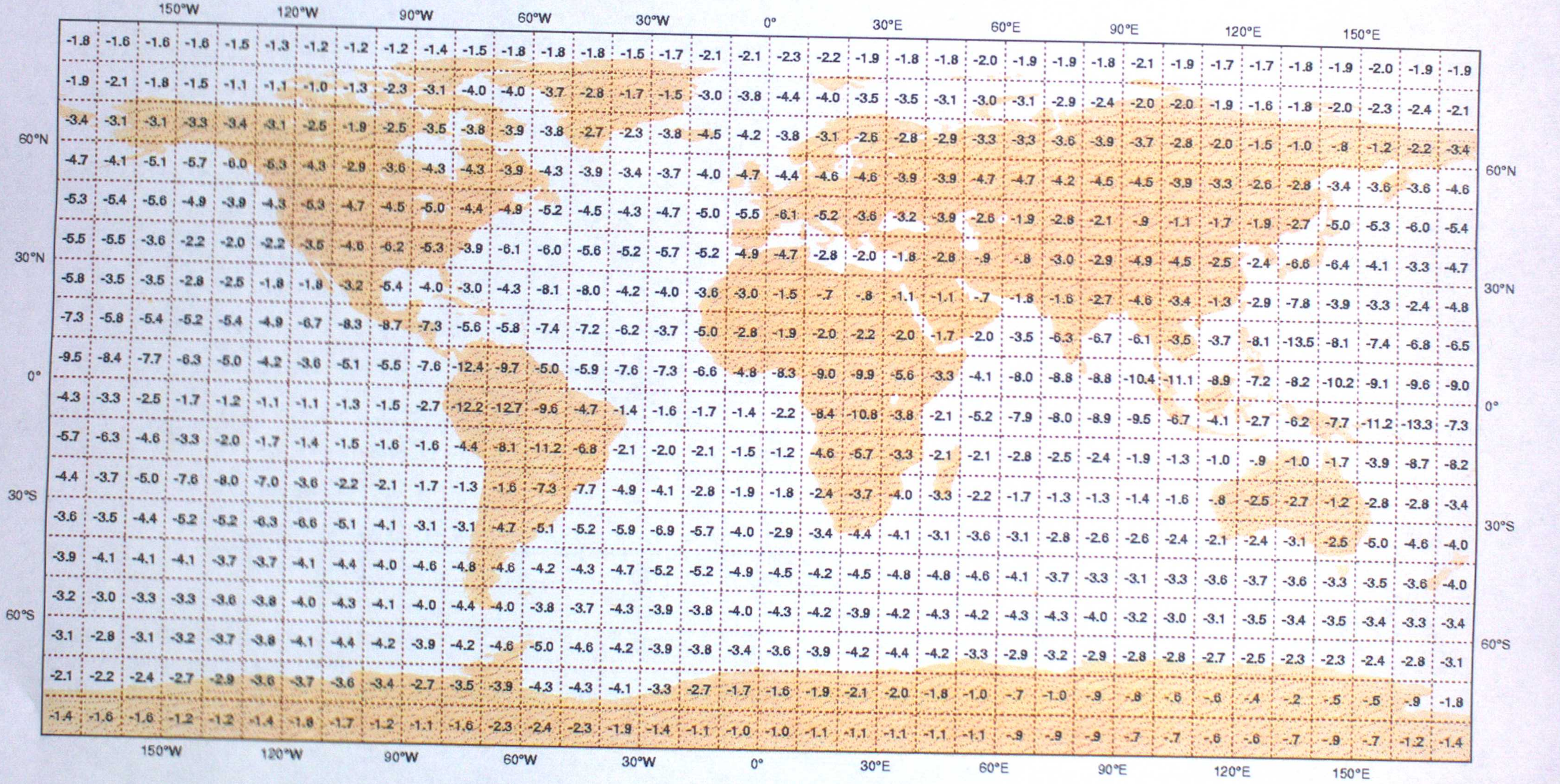
-10.5	-10.0	-10.0	-9.8	-9.5	-9.1	-8.6	-8.7	-8.3	-7.7	-7.1	-8.4	-7.3	-6.8	-5.4	-7.4	-10.5	-10.3	-11.3	-11.5	-10.5	-10.8	-10.7	-11.2	-11.0	-11.2	-10.7	-11.4	-11.1	-10.6	-10.5	-10.8	-10.7	-10.9	-10.7	-10.8
-11.1	-11.6	-10.2	-8.7	-7.7	-8.4	-7.6	-8.6	-11.0	-12.1	-15.3	-14.4	-12.0	-7.7	-5.5	-3.2	-11.8	-15.3	-17.3	-15.4	-14.4	-15.5	-14.6	-13.3	-13.6	-12.6	-10.3	-8.7	-9.4	-10.0	-9.3	-10.1	-10.7	-11.7	-12.2	-11.5
-14.6	-12.3	-10.5	-9.6	-10.1	-9.8	-9.3	-8.0	-9.9	-13.3	-14.1	-12.9	-13.3	-7.0	-8.1	-13.4	-16.0	-15.5	-13.6	-10.8	-9.6	-10.7	-11.4	-12.2	-11.9	-12.6	-13.7	-12.9	-10.5	-8.5	-7.7	-5.4	-4.5	-6.2	-9.3	-14.1
-15.9	-13.9	-16.0	-17.3	-17.5	-14.5	-12.5	-9.4	-11.6	-14.2	-13.3	-11.6	-12.6	-12.9	-12.5	-13.5	-14.4	-15.5	-13.9	-14.4	-14.4	-12.5	-12.9	-14.8	-14.8	-13.7	-14.4	-14.2	-12.2	-10.6	-9.8	-10.4	-13.8	-14.7	-14.0	-17.0
-15.0	-15.2	-15.5	-13.8	-12.0	-11.6	-12.6	-11.3	-11.7	-13.3	-11.7	-13.3	-14.6	-13.3	-13.4	-14.8	-15.5	-15.5	-16.7	-13.8	-10.2	-9.4	-10.7	-7.4	-5.1	-7.1	-4.9	-1.5	-1.9	-4.3	-5.5	-8.3	-14.4	-14.8	-17.1	-15.5
-13.7	-13.5	-9.1	-6.5	-6.6	-6.0	-7.5	-9.6	-14.4	-12.2	-10.1	-15.4	-14.9	-13.7	-13.0	-14.8	-13.7	-12.2	-12.6	-6.8	-5.0	-3.5	-5.7	-.4	-.3	-6.2	-5.9	-9.2	-9.6	-5.8	-6.3	-16.4	-16.2	-11.2	-9.1	-12.9
-13.5	-7.6	-7.9	-7.1	-7.0	-6.0	-4.7	-6.2	-11.5	-8.4	-6.6	-9.6	-18.7	-18.3	-10.1	-9.6	-8.7	-7.7	-3.9	-1.2	-2.0	-1.4	-1.3	-.2	-2.6	-2.2	-5.0	-9.6	-7.9	-2.4	-7.4	-16.8	-8.4	-7.6	-5.6	-11.4
-16.4	-12.8	-12.0	-11.8	-12.6	-11.4	-15.0	-18.0	-19.3	-16.2	-12.3	-12.8	-16.2	-16.0	-14.0	-8.4	-11.6	-6.3	-3.1	-4.3	-4.2	-3.0	-2.4	-4.1	-7.4	-13.9	-14.7	-13.2	-8.1	-8.3	-18.6	-29.2	-17.4	-16.2	-15.3	-14.4
-20.8	-18.0	-16.3	-13.7	-10.7	-9.3	-8.2	-12.1	-12.8	-17.4	-27.9	-22.4	-11.7	-12.7	-17.0	-16.3	-14.9	-11.2	-19.0	-21.2	-22.3	-12.1	-6.9	-8.5	-17.3	-19.3	-19.2	-23.5	-25.6	-20.8	-16.5	-18.7	-21.9	-19.8	-20.4	-19.1
-9.1	-6.6	-4.8	-2.9	-1.8	-1.8	-2.2	-3.5	-4.3	-7.1	-27.9	-29.2	-23.2	-11.8	-2.7	-3.7	-4.5	-3.9	-5.2	-19.5	-24.6	-8.6	-4.3	-11.3	-17.1	-17.8	-19.8	-21.5	-15.4	-9.1	-5.9	-14.5	-17.2	-25.1	-29.0	-16.0
-13.1	-14.3	-10.5	-7.7	-5.0	-4.6	-4.4	-5.7	-6.6	-7.2	-10.9	-18.8	-27.8	-16.6	-5.1	-5.3	-6.9	-5.5	-3.8	-10.2	-13.2	-7.6	-4.7	-5.1	-6.8	-6.1	-5.8	-4.5	-3.0	-1.4	-.8	-1.3	-3.8	-9.2	-19.9	-18.9
-12.3	-10.6	-13.3	-18.7	-20.3	-17.7	-10.2	-8.3	-8.5	-7.7	-5.8	-3.5	-16.1	-18.8	-12.8	-11.0	-8.6	-7.5	-5.7	-4.8	-7.7	-9.4	-8.1	-6.2	-5.0	-4.3	-4.7	-5.1	-5.2	.4	-4.7	-5.7	-1.5	-7.0	-7.4	-8.9
-11.4	-11.0	-12.8	-14.7	-15.5	-17.6	-18.4	-15.5	-13.1	-10.9	-9.6	-11.8	-13.0	-14.5	-16.2	-18.4	-16.4	-12.8	-10.0	-10.1	-12.0	-11.6	-9.1	-10.4	-9.9	-9.5	-9.6	-10.4	-9.5	-7.6	-7.0	-8.1	-6.1	-13.9	-13.8	-12.2
-13.8	-15.0	-14.2	-13.9	-13.1	-12.8	-13.5	-14.2	-13.5	-15.6	-15.5	-13.7	-12.4	-13.7	-14.7	-16.4	-16.3	-16.0	-14.9	-14.1	-15.0	-15.6	-14.7	-14.9	-14.6	-13.7	-13.2	-12.7	-13.1	-13.5	-13.3	-12.4	-11.8	-12.5	-13.0	-12.8
-14.6	-14.0	-14.2	-13.8	-14.2	-14.9	-14.8	-15.9	-15.8	-14.9	-16.6	-14.6	-13.5	-13.0	-14.2	-14.1	-14.6	-15.0	-16.0	-15.8	-15.5	-16.0	-16.3	-16.8	-16.5	-16.3	-16.3	-13.7	-13.2	-13.4	-14.8	-14.3	-13.8	-14.5	-15.1	-14.7
-15.4	-14.4	-15.6	-15.2	-15.6	-16.1	-16.6	-17.0	-16.1	-15.0	-15.9	-15.8	-17.6	-16.6	-15.9	-15.4	-15.6	-13.9	-14.1	-15.3	-16.1	-16.7	-15.2	-12.4	-11.9	-13.5	-12.3	-11.7	-11.8	-12.0	-11.6	-10.9	-11.2	-12.5	-14.1	-15.0
-10.8	-10.9	-11.7	-11.3	-11.8	-14.0	-13.8	-13.5	-12.3	-9.9	-12.1	-12.1	-16.3	-16.2	-15.2	-11.8	-8.7	-5.2	-5.1	-6.1	-6.6	-5.9	-5.7	-3.8	-2.1	-3.2	-2.9	-3.4	-4.2	-4.4	-3.7	-2.7	-4.0	-3.4	-4.4	-9.9
-10.2	-11.9	-10.6	-6.4	-5.4	-5.7	-6.4	-6.1	-4.4	-4.1	-6.5	-9.9	-9.6	-8.1	-6.7	-5.0	-4.6	-4.9	-5.3	-5.4	-4.8	-5.2	-6.2	-6.2	-5.6	-5.4	-5.4	-4.8	-4.4	-3.8	-3.6	-3.9	-5.0	-2.7	-6.4	-8.7

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS8 (Surface)
NOAA16, using all observations



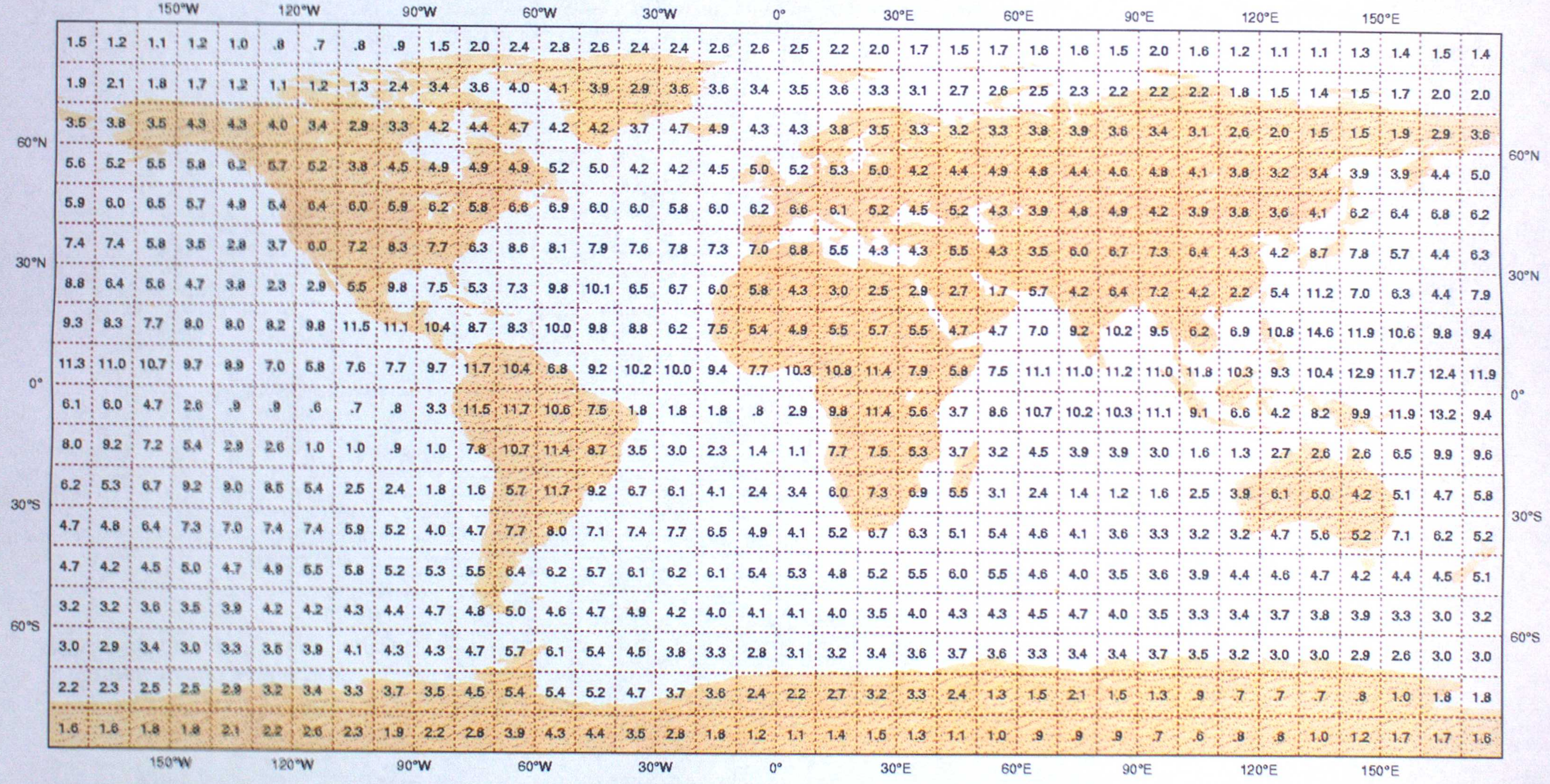
4.3	3.7	3.6	3.9	3.6	3.6	3.4	3.6	3.6	5.4	6.0	6.5	7.7	7.3	7.7	8.1	6.6	6.6	6.8	6.5	6.0	5.4	5.0	4.9	4.6	4.8	4.6	5.4	4.7	4.0	3.8	3.9	4.0	4.4	4.5	4.4
6.1	6.3	5.4	5.3	4.2	4.5	4.5	4.2	6.5	9.2	10.2	10.6	10.7	8.6	6.4	10.2	9.7	9.4	9.8	10.5	9.9	9.3	8.4	8.1	7.6	6.7	6.5	6.5	6.5	5.6	5.0	4.8	4.9	5.3	6.0	6.2
9.9	10.4	9.7	11.2	11.0	9.8	8.7	7.1	8.7	10.9	10.7	11.6	11.7	11.0	11.0	13.4	13.3	12.2	12.2	11.0	10.1	9.5	9.0	9.0	10.0	10.1	9.0	9.0	8.3	7.1	6.4	5.6	5.5	6.7	8.8	10.8
14.4	13.0	14.2	14.8	15.6	14.1	13.0	10.3	11.5	12.0	12.1	11.6	12.4	12.0	10.9	11.5	12.6	13.8	13.6	14.0	12.7	11.2	11.2	11.5	12.0	11.8	12.0	13.0	11.4	10.5	9.2	10.1	12.4	11.5	12.9	13.6
14.3	14.7	15.6	13.8	12.7	14.6	15.6	14.8	14.2	14.7	14.2	15.5	15.6	14.6	14.2	14.5	15.1	15.6	16.7	15.2	13.9	12.4	13.7	12.4	11.9	13.2	13.3	11.6	10.8	11.0	10.6	12.0	15.3	14.9	15.2	14.9
17.0	17.5	13.5	9.3	8.0	10.3	14.7	16.6	18.6	17.3	15.0	19.6	18.8	18.2	17.8	18.6	17.1	17.7	18.6	14.6	11.8	11.9	14.1	11.7	10.1	14.4	14.5	15.1	14.8	12.5	12.0	19.6	17.8	13.7	11.4	14.7
19.3	14.6	13.5	11.5	9.5	6.7	7.9	13.3	21.2	16.7	12.8	16.7	21.8	22.0	15.6	16.5	15.8	15.8	13.2	9.2	7.1	8.8	7.6	5.3	12.7	10.8	14.6	16.1	10.1	6.9	12.7	22.9	15.3	13.6	10.4	17.2
20.4	18.6	17.6	17.8	17.8	17.7	20.8	24.0	23.5	22.4	19.7	19.0	21.9	21.7	19.8	14.9	18.2	14.6	13.7	14.4	14.6	13.8	12.1	11.1	15.4	20.3	22.5	20.8	14.1	15.5	23.0	29.7	24.5	22.8	21.0	19.9
24.4	23.1	23.0	21.0	18.7	15.2	13.0	16.2	16.4	20.5	23.9	22.8	15.8	20.2	21.9	21.5	20.4	17.2	22.4	24.5	24.8	17.9	14.1	16.2	23.3	23.8	23.9	23.4	24.9	22.5	20.7	22.6	26.5	24.9	25.6	24.7
14.5	13.4	11.0	6.8	3.2	3.2	2.9	3.2	3.1	8.0	24.5	25.0	23.5	17.3	5.5	5.2	5.0	3.0	7.5	21.5	24.7	13.6	9.3	18.5	22.7	22.2	22.2	24.1	20.7	15.7	10.5	18.4	21.2	25.1	27.2	20.7
18.2	20.0	16.2	12.7	8.1	7.0	4.4	4.5	4.0	3.5	16.3	23.7	25.4	19.7	9.1	7.9	6.4	4.7	3.7	18.6	17.9	13.1	9.5	7.9	10.6	9.6	9.4	7.8	5.0	4.0	8.1	7.8	7.8	14.7	21.1	20.7
14.9	13.8	16.1	20.4	20.1	19.6	13.3	7.7	7.2	6.1	5.3	13.9	25.6	20.5	16.5	15.4	10.8	7.2	8.7	15.3	17.8	16.3	13.7	8.6	7.0	5.3	5.3	6.2	7.4	11.6	16.1	16.5	12.4	13.2	11.7	14.3
12.4	12.9	15.5	16.8	16.6	17.7	17.4	14.3	13.2	10.9	12.4	19.5	19.4	17.6	18.0	18.3	16.1	13.4	11.3	14.2	16.8	15.0	12.8	13.3	12.4	11.0	9.8	9.8	9.4	10.2	12.8	14.6	14.7	17.7	15.7	13.8
12.8	12.0	12.8	13.3	12.9	12.9	13.7	14.5	13.2	13.8	14.8	17.4	15.4	14.7	15.1	14.4	14.3	13.5	13.1	12.2	12.8	13.8	14.2	13.4	12.0	10.9	10.1	10.7	11.6	12.6	13.2	12.9	12.1	12.3	12.6	13.9
10.5	10.7	11.0	11.0	11.1	12.0	11.8	11.7	12.0	12.3	13.5	13.9	12.1	11.5	12.3	11.0	10.4	10.7	10.3	9.9	9.5	9.9	11.0	10.9	10.9	11.7	10.5	9.7	9.9	10.2	11.1	11.3	11.1	10.1	9.6	10.4
8.7	8.5	9.0	8.5	9.1	9.7	10.5	11.2	11.1	10.6	11.5	14.1	14.8	12.7	11.1	10.1	9.1	8.4	9.3	9.2	9.6	10.2	11.2	11.3	10.3	10.5	10.6	10.9	10.6	10.0	10.0	10.1	9.7	8.8	9.0	8.9
7.5	7.4	8.1	9.3	9.9	10.6	11.1	10.5	11.3	10.6	12.0	13.4	13.3	13.1	12.3	11.4	11.1	7.8	7.2	8.4	9.7	9.6	7.3	4.4	4.9	6.5	4.5	3.6	2.8	2.4	2.5	2.4	2.6	3.9	8.1	6.8
8.2	8.3	8.5	6.9	6.8	7.2	8.0	7.3	6.5	6.8	8.9	11.0	11.8	12.1	10.2	8.0	5.4	3.8	3.5	3.8	4.3	3.8	3.4	3.6	3.3	3.1	2.9	2.5	2.4	2.7	3.0	3.5	4.0	6.2	8.0	7.7

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



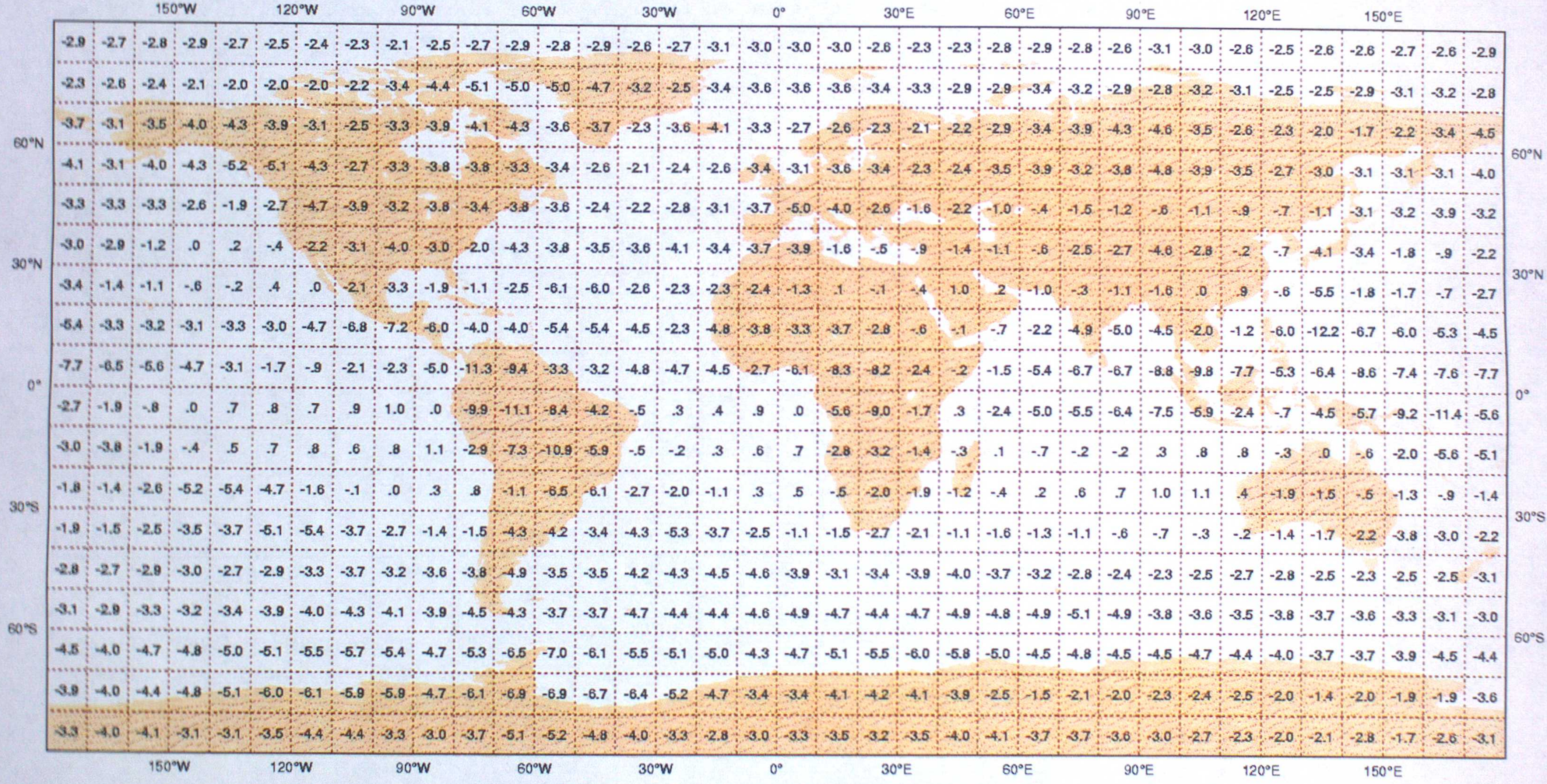
-1.8	-1.6	-1.6	-1.6	-1.5	-1.3	-1.2	-1.2	-1.2	-1.4	-1.5	-1.8	-1.8	-1.8	-1.5	-1.7	-2.1	-2.1	-2.3	-2.2	-1.9	-1.8	-1.8	-2.0	-1.9	-1.9	-1.8	-2.1	-1.9	-1.7	-1.7	-1.8	-1.9	-2.0	-1.9	-1.9
-1.9	-2.1	-1.8	-1.5	-1.1	-1.1	-1.0	-1.3	-2.3	-3.1	-4.0	-4.0	-3.7	-2.8	-1.7	-1.5	-3.0	-3.8	-4.4	-4.0	-3.5	-3.5	-3.1	-3.0	-3.1	-2.9	-2.4	-2.0	-2.0	-1.9	-1.6	-1.8	-2.0	-2.3	-2.4	-2.1
-3.4	-3.1	-3.1	-3.3	-3.4	-3.1	-2.5	-1.9	-2.5	-3.5	-3.8	-3.9	-3.8	-2.7	-2.3	-3.8	-4.5	-4.2	-3.8	-3.1	-2.6	-2.8	-2.9	-3.3	-3.3	-3.6	-3.9	-3.7	-2.8	-2.0	-1.5	-1.0	-.8	-1.2	-2.2	-3.4
-4.7	-4.1	-5.1	-5.7	-6.0	-6.3	-4.3	-2.9	-3.6	-4.3	-4.3	-3.9	-4.3	-3.9	-3.4	-3.7	-4.0	-4.7	-4.4	-4.6	-4.6	-3.9	-3.9	-4.7	-4.7	-4.2	-4.5	-4.5	-3.9	-3.3	-2.6	-2.8	-3.4	-3.6	-3.6	-4.6
-5.3	-5.4	-5.6	-4.9	-3.9	-4.3	-5.3	-4.7	-4.5	-5.0	-4.4	-4.8	-5.2	-4.5	-4.3	-4.7	-5.0	-5.5	-6.1	-5.2	-3.6	-3.2	-3.9	-2.6	-1.9	-2.8	-2.1	-.9	-1.1	-1.7	-1.9	-2.7	-5.0	-5.3	-6.0	-5.4
-5.5	-5.5	-3.6	-2.2	-2.0	-2.2	-3.5	-4.6	-6.2	-5.3	-3.9	-6.1	-6.0	-5.6	-5.2	-5.7	-5.2	-4.9	-4.7	-2.8	-2.0	-1.8	-2.8	-.9	-.8	-3.0	-2.9	-4.9	-4.5	-2.5	-2.4	-6.6	-6.4	-4.1	-3.3	-4.7
-5.8	-3.5	-3.5	-2.8	-2.5	-1.8	-1.8	-3.2	-5.4	-4.0	-3.0	-4.3	-8.1	-8.0	-4.2	-4.0	-3.6	-3.0	-1.5	-.7	-.8	-1.1	-1.1	-.7	-1.8	-1.6	-2.7	-4.6	-3.4	-1.3	-2.9	-7.8	-3.9	-3.3	-2.4	-4.8
-7.3	-5.8	-5.4	-5.2	-5.4	-4.9	-6.7	-8.3	-8.7	-7.3	-5.6	-5.8	-7.4	-7.2	-6.2	-3.7	-5.0	-2.8	-1.9	-2.0	-2.2	-2.0	-1.7	-2.0	-3.5	-6.3	-6.7	-6.1	-3.5	-3.7	-8.1	-13.5	-8.1	-7.4	-6.8	-6.5
-9.5	-8.4	-7.7	-6.3	-5.0	-4.2	-3.6	-5.1	-5.5	-7.6	-12.4	-9.7	-5.0	-5.9	-7.6	-7.3	-6.6	-4.8	-8.3	-9.0	-9.9	-5.6	-3.3	-4.1	-8.0	-8.8	-8.8	-10.4	-11.1	-8.9	-7.2	-8.2	-10.2	-9.1	-9.6	-9.0
-4.3	-3.3	-2.5	-1.7	-1.2	-1.1	-1.1	-1.3	-1.5	-2.7	-12.2	-12.7	-9.6	-4.7	-1.4	-1.6	-1.7	-1.4	-2.2	-8.4	-10.8	-3.8	-2.1	-5.2	-7.9	-8.0	-8.9	-9.5	-6.7	-4.1	-2.7	-6.2	-7.7	-11.2	-13.3	-7.3
-5.7	-6.3	-4.6	-3.3	-2.0	-1.7	-1.4	-1.5	-1.6	-1.6	-4.4	-8.1	-11.2	-6.8	-2.1	-2.0	-2.1	-1.5	-1.2	-4.6	-5.7	-3.3	-2.1	-2.1	-2.8	-2.5	-2.4	-1.9	-1.3	-1.0	-.9	-1.0	-1.7	-3.9	-8.7	-8.2
-4.4	-3.7	-5.0	-7.6	-8.0	-7.0	-3.6	-2.2	-2.1	-1.7	-1.3	-1.6	-7.3	-7.7	-4.9	-4.1	-2.8	-1.9	-1.8	-2.4	-3.7	-4.0	-3.3	-2.2	-1.7	-1.3	-1.3	-1.4	-1.6	-.8	-2.5	-2.7	-1.2	-2.8	-2.8	-3.4
-3.6	-3.5	-4.4	-5.2	-5.2	-6.3	-6.6	-5.1	-4.1	-3.1	-3.1	-4.7	-5.1	-5.2	-5.9	-6.9	-5.7	-4.0	-2.9	-3.4	-4.4	-4.1	-3.1	-3.6	-3.1	-2.8	-2.6	-2.6	-2.4	-2.1	-2.4	-3.1	-2.5	-5.0	-4.6	-4.0
-3.9	-4.1	-4.1	-4.1	-3.7	-3.7	-4.1	-4.4	-4.0	-4.6	-4.8	-4.6	-4.2	-4.3	-4.7	-5.2	-5.2	-4.9	-4.5	-4.2	-4.5	-4.8	-4.8	-4.6	-4.1	-3.7	-3.3	-3.1	-3.3	-3.6	-3.7	-3.6	-3.3	-3.5	-3.6	-4.0
-3.2	-3.0	-3.3	-3.3	-3.6	-3.8	-4.0	-4.3	-4.1	-4.0	-4.4	-4.0	-3.8	-3.7	-4.3	-3.9	-3.8	-4.0	-4.3	-4.2	-3.9	-4.2	-4.3	-4.2	-4.3	-4.3	-4.0	-3.2	-3.0	-3.1	-3.5	-3.4	-3.5	-3.4	-3.3	-3.4
-3.1	-2.8	-3.1	-3.2	-3.7	-3.8	-4.1	-4.4	-4.2	-3.9	-4.2	-4.6	-5.0	-4.6	-4.2	-3.9	-3.8	-3.4	-3.6	-3.9	-4.2	-4.4	-4.2	-3.3	-2.9	-3.2	-2.9	-2.8	-2.8	-2.7	-2.5	-2.3	-2.3	-2.4	-2.8	-3.1
-2.1	-2.2	-2.4	-2.7	-2.9	-3.6	-3.7	-3.6	-3.4	-2.7	-3.5	-3.9	-4.3	-4.3	-4.1	-3.3	-2.7	-1.7	-1.6	-1.9	-2.1	-2.0	-1.8	-1.0	-.7	-1.0	-.9	-.8	-.6	-.6	-.4	-.2	-.5	-.5	-.9	-1.8
-1.4	-1.6	-1.6	-1.2	-1.2	-1.4	-1.8	-1.7	-1.2	-1.1	-1.6	-2.3	-2.4	-2.3	-1.9	-1.4	-1.1	-1.0	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-.9	-.9	-.9	-.7	-.7	-.6	-.6	-.7	-.9	-.7	-1.2	-1.4

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



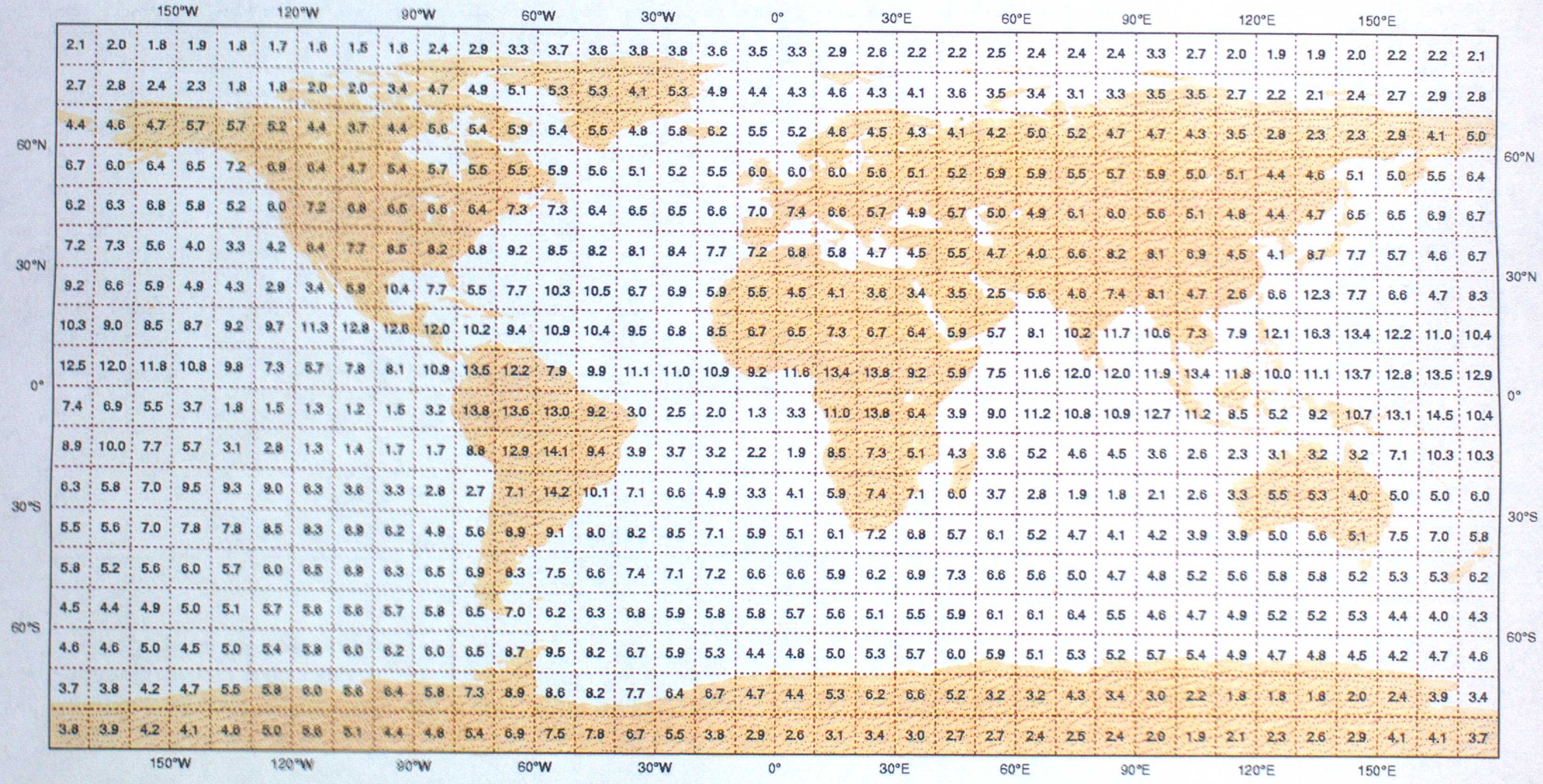
1.5	1.2	1.1	1.2	1.0	.8	.7	.8	.9	1.5	2.0	2.4	2.8	2.6	2.4	2.4	2.6	2.6	2.5	2.2	2.0	1.7	1.5	1.7	1.6	1.6	1.5	2.0	1.6	1.2	1.1	1.1	1.3	1.4	1.5	1.4
1.9	2.1	1.8	1.7	1.2	1.1	1.2	1.3	2.4	3.4	3.6	4.0	4.1	3.9	2.9	3.6	3.6	3.4	3.5	3.6	3.3	3.1	2.7	2.6	2.5	2.3	2.2	2.2	2.2	1.8	1.5	1.4	1.5	1.7	2.0	2.0
3.5	3.8	3.5	4.3	4.3	4.0	3.4	2.9	3.3	4.2	4.4	4.7	4.2	4.2	3.7	4.7	4.9	4.3	4.3	3.8	3.5	3.3	3.2	3.3	3.8	3.9	3.6	3.4	3.1	2.6	2.0	1.5	1.5	1.9	2.9	3.6
5.6	5.2	5.5	5.8	6.2	5.7	5.2	3.8	4.5	4.9	4.9	4.9	5.2	5.0	4.2	4.2	4.5	5.0	5.2	5.3	5.0	4.2	4.4	4.9	4.8	4.4	4.6	4.8	4.1	3.8	3.2	3.4	3.9	3.9	4.4	5.0
5.9	6.0	6.5	5.7	4.9	5.4	6.4	6.0	5.9	6.2	5.8	6.6	6.9	6.0	6.0	5.8	6.0	6.2	6.6	6.1	5.2	4.5	5.2	4.3	3.9	4.8	4.9	4.2	3.9	3.8	3.6	4.1	6.2	6.4	6.8	6.2
7.4	7.4	5.8	3.5	2.8	3.7	6.0	7.2	8.3	7.7	6.3	8.6	8.1	7.9	7.6	7.8	7.3	7.0	6.8	5.5	4.3	4.3	5.5	4.3	3.5	6.0	6.7	7.3	6.4	4.3	4.2	8.7	7.8	5.7	4.4	6.3
8.8	6.4	5.6	4.7	3.8	2.3	2.9	5.5	9.8	7.5	5.3	7.3	9.8	10.1	6.5	6.7	6.0	5.8	4.3	3.0	2.5	2.9	2.7	1.7	5.7	4.2	6.4	7.2	4.2	2.2	5.4	11.2	7.0	6.3	4.4	7.9
9.3	8.3	7.7	8.0	8.0	8.2	9.8	11.5	11.1	10.4	8.7	8.3	10.0	9.8	8.8	6.2	7.5	5.4	4.9	5.5	5.7	5.5	4.7	4.7	7.0	9.2	10.2	9.5	6.2	6.9	10.8	14.6	11.9	10.6	9.8	9.4
11.3	11.0	10.7	9.7	8.9	7.0	5.8	7.6	7.7	9.7	11.7	10.4	6.8	9.2	10.2	10.0	9.4	7.7	10.3	10.8	11.4	7.9	5.8	7.5	11.1	11.0	11.2	11.0	11.8	10.3	9.3	10.4	12.9	11.7	12.4	11.9
6.1	6.0	4.7	2.6	.9	.9	.6	.7	.8	3.3	11.5	11.7	10.6	7.5	1.8	1.8	1.8	.8	2.9	9.8	11.4	5.6	3.7	8.6	10.7	10.2	10.3	11.1	9.1	6.6	4.2	8.2	9.9	11.9	13.2	9.4
8.0	9.2	7.2	5.4	2.9	2.6	1.0	1.0	.9	1.0	7.8	10.7	11.4	8.7	3.5	3.0	2.3	1.4	1.1	7.7	7.5	5.3	3.7	3.2	4.5	3.9	3.9	3.0	1.6	1.3	2.7	2.6	2.6	6.5	9.9	9.6
6.2	5.3	6.7	9.2	9.0	8.5	5.4	2.5	2.4	1.8	1.6	5.7	11.7	9.2	6.7	6.1	4.1	2.4	3.4	6.0	7.3	6.9	5.5	3.1	2.4	1.4	1.2	1.6	2.5	3.9	6.1	6.0	4.2	5.1	4.7	5.8
4.7	4.8	6.4	7.3	7.0	7.4	7.4	5.9	5.2	4.0	4.7	7.7	8.0	7.1	7.4	7.7	6.5	4.9	4.1	5.2	6.7	6.3	5.1	5.4	4.6	4.1	3.6	3.3	3.2	3.2	4.7	5.6	5.2	7.1	6.2	5.2
4.7	4.2	4.5	5.0	4.7	4.9	5.5	5.8	5.2	5.3	5.5	6.4	6.2	5.7	6.1	6.2	6.1	5.4	5.3	4.8	5.2	5.5	6.0	5.5	4.6	4.0	3.5	3.6	3.9	4.4	4.6	4.7	4.2	4.4	4.5	5.1
3.2	3.2	3.6	3.5	3.9	4.2	4.2	4.3	4.4	4.7	4.8	5.0	4.6	4.7	4.9	4.2	4.0	4.1	4.1	4.0	3.5	4.0	4.3	4.3	4.5	4.7	4.0	3.5	3.3	3.4	3.7	3.8	3.9	3.3	3.0	3.2
3.0	2.9	3.4	3.0	3.3	3.5	3.9	4.1	4.3	4.3	4.7	5.7	6.1	5.4	4.5	3.8	3.3	2.8	3.1	3.2	3.4	3.6	3.7	3.6	3.3	3.4	3.4	3.7	3.5	3.2	3.0	3.0	2.9	2.6	3.0	3.0
2.2	2.3	2.5	2.5	2.9	3.2	3.4	3.3	3.7	3.5	4.5	5.4	5.4	5.2	4.7	3.7	3.6	2.4	2.2	2.7	3.2	3.3	2.4	1.3	1.5	2.1	1.5	1.3	.9	.7	.7	.7	.8	1.0	1.8	1.8
1.6	1.6	1.8	1.8	2.1	2.2	2.6	2.3	1.9	2.2	2.8	3.9	4.3	4.4	3.5	2.8	1.8	1.2	1.1	1.4	1.5	1.3	1.1	1.0	.9	.9	.9	.7	.6	.8	.8	1.0	1.2	1.7	1.7	1.6

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



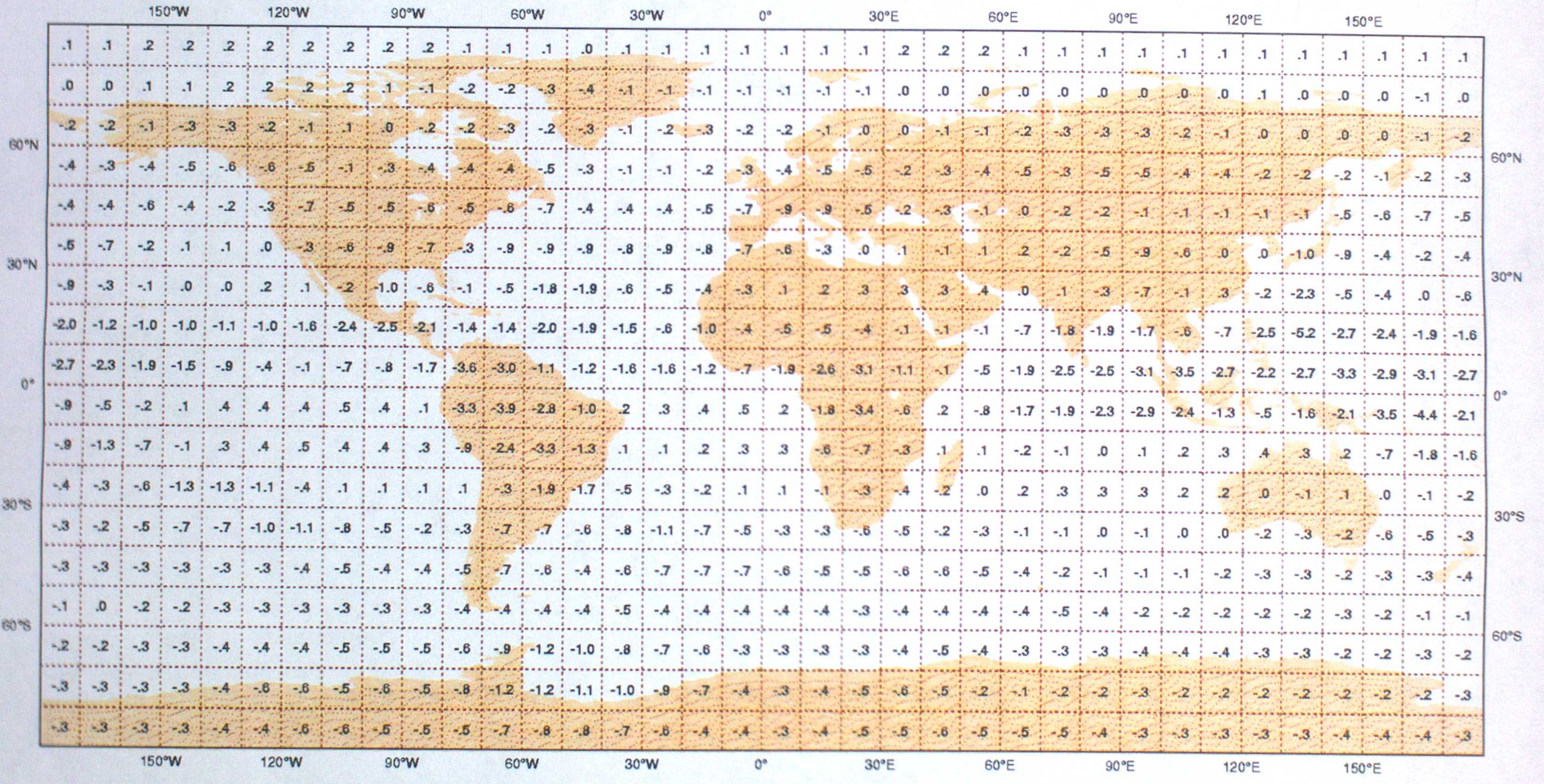
-2.9	-2.7	-2.8	-2.9	-2.7	-2.5	-2.4	-2.3	-2.1	-2.5	-2.7	-2.9	-2.8	-2.9	-2.6	-2.7	-3.1	-3.0	-3.0	-3.0	-2.6	-2.3	-2.3	-2.8	-2.9	-2.8	-2.6	-3.1	-3.0	-2.6	-2.5	-2.6	-2.6	-2.7	-2.6	-2.9
-2.3	-2.6	-2.4	-2.1	-2.0	-2.0	-2.0	-2.2	-3.4	-4.4	-5.1	-5.0	-5.0	-4.7	-3.2	-2.5	-3.4	-3.6	-3.6	-3.6	-3.4	-3.3	-2.9	-2.9	-3.4	-3.2	-2.9	-2.8	-3.2	-3.1	-2.5	-2.5	-2.9	-3.1	-3.2	-2.8
-3.7	-3.1	-3.5	-4.0	-4.3	-3.9	-3.1	-2.5	-3.3	-3.9	-4.1	-4.3	-3.6	-3.7	-2.3	-3.6	-4.1	-3.3	-2.7	-2.6	-2.3	-2.1	-2.2	-2.9	-3.4	-3.9	-4.3	-4.6	-3.5	-2.6	-2.3	-2.0	-1.7	-2.2	-3.4	-4.5
-4.1	-3.1	-4.0	-4.3	-5.2	-5.1	-4.3	-2.7	-3.3	-3.8	-3.8	-3.3	-3.4	-2.6	-2.1	-2.4	-2.6	-3.4	-3.1	-3.6	-3.4	-2.3	-2.4	-3.5	-3.9	-3.2	-3.8	-4.8	-3.9	-3.5	-2.7	-3.0	-3.1	-3.1	-3.1	-4.0
-3.3	-3.3	-3.3	-2.6	-1.9	-2.7	-4.7	-3.9	-3.2	-3.8	-3.4	-3.8	-3.6	-2.4	-2.2	-2.8	-3.1	-3.7	-5.0	-4.0	-2.6	-1.6	-2.2	-1.0	-.4	-1.5	-1.2	-.6	-1.1	-.9	-.7	-1.1	-3.1	-3.2	-3.9	-3.2
-3.0	-2.9	-1.2	.0	.2	-.4	-2.2	-3.1	-4.0	-3.0	-2.0	-4.3	-3.8	-3.5	-3.6	-4.1	-3.4	-3.7	-3.9	-1.6	-.5	-.9	-1.4	-1.1	-.6	-2.5	-2.7	-4.6	-2.8	-.2	-.7	-4.1	-3.4	-1.8	-.9	-2.2
-3.4	-1.4	-1.1	-.6	-.2	.4	.0	-2.1	-3.3	-1.9	-1.1	-2.5	-6.1	-6.0	-2.6	-2.3	-2.3	-2.4	-1.3	.1	-.1	-.4	1.0	.2	-1.0	-.3	-1.1	-1.6	.0	.9	-.6	-5.5	-1.8	-1.7	-.7	-2.7
-5.4	-3.3	-3.2	-3.1	-3.3	-3.0	-4.7	-6.8	-7.2	-6.0	-4.0	-4.0	-5.4	-5.4	-4.5	-2.3	-4.8	-3.8	-3.3	-3.7	-2.8	-.6	-.1	-.7	-2.2	-4.9	-5.0	-4.5	-2.0	-1.2	-6.0	-12.2	-6.7	-6.0	-5.3	-4.5
-7.7	-6.5	-5.6	-4.7	-3.1	-1.7	-.9	-2.1	-2.3	-5.0	-11.3	-9.4	-3.3	-3.2	-4.8	-4.7	-4.5	-2.7	-6.1	-8.3	-8.2	-2.4	-.2	-1.5	-5.4	-6.7	-6.7	-8.8	-9.8	-7.7	-5.3	-6.4	-8.6	-7.4	-7.6	-7.7
-2.7	-1.9	-.8	.0	.7	.8	.7	.9	1.0	.0	-9.9	-11.1	-8.4	-4.2	-.5	.3	.4	.9	.0	-5.6	-9.0	-1.7	.3	-2.4	-5.0	-5.5	-6.4	-7.5	-5.9	-2.4	-.7	-4.5	-5.7	-9.2	-11.4	-5.6
-3.0	-3.8	-1.9	-.4	.5	.7	.8	.6	.8	1.1	-2.9	-7.3	-10.9	-5.9	-.5	-.2	.3	.6	.7	-2.8	-3.2	-1.4	-.3	.1	-.7	-.2	-.2	.3	.8	.8	-.3	.0	-.6	-2.0	-5.6	-5.1
-1.8	-1.4	-2.6	-5.2	-5.4	-4.7	-1.6	-.1	.0	.3	.8	-1.1	-6.5	-6.1	-2.7	-2.0	-1.1	.3	.5	-.5	-2.0	-1.9	-1.2	-.4	.2	.6	.7	1.0	1.1	.4	-1.9	-1.5	-.5	-1.3	-.9	-1.4
-1.9	-1.5	-2.5	-3.5	-3.7	-5.1	-5.4	-3.7	-2.7	-1.4	-1.5	-4.3	-4.2	-3.4	-4.3	-5.3	-3.7	-2.5	-1.1	-1.5	-2.7	-2.1	-1.1	-1.6	-1.3	-1.1	-.6	-.7	-.3	-.2	-1.4	-1.7	-2.2	-3.8	-3.0	-2.2
-2.8	-2.7	-2.9	-3.0	-2.7	-2.9	-3.3	-3.7	-3.2	-3.6	-3.8	-4.9	-3.5	-3.5	-4.2	-4.3	-4.5	-4.6	-3.9	-3.1	-3.4	-3.9	-4.0	-3.7	-3.2	-2.8	-2.4	-2.3	-2.5	-2.7	-2.8	-2.5	-2.3	-2.5	-2.5	-3.1
-3.1	-2.9	-3.3	-3.2	-3.4	-3.9	-4.0	-4.3	-4.1	-3.9	-4.5	-4.3	-3.7	-3.7	-4.7	-4.4	-4.4	-4.6	-4.9	-4.7	-4.4	-4.7	-4.9	-4.8	-4.9	-5.1	-4.9	-3.8	-3.6	-3.5	-3.8	-3.7	-3.6	-3.3	-3.1	-3.0
-4.5	-4.0	-4.7	-4.8	-5.0	-5.1	-5.5	-5.7	-5.4	-4.7	-5.3	-6.5	-7.0	-6.1	-5.5	-5.1	-5.0	-4.3	-4.7	-5.1	-5.5	-6.0	-5.8	-5.0	-4.5	-4.8	-4.5	-4.5	-4.7	-4.4	-4.0	-3.7	-3.7	-3.9	-4.5	-4.4
-3.9	-4.0	-4.4	-4.8	-5.1	-6.0	-6.1	-5.9	-5.9	-4.7	-6.1	-6.9	-6.9	-6.7	-6.4	-5.2	-4.7	-3.4	-3.4	-4.1	-4.2	-4.1	-3.9	-2.5	-1.5	-2.1	-2.0	-2.3	-2.4	-2.5	-2.0	-1.4	-2.0	-1.9	-1.9	-3.6
-3.3	-4.0	-4.1	-3.1	-3.1	-3.5	-4.4	-4.4	-3.3	-3.0	-3.7	-5.1	-5.2	-4.8	-4.0	-3.3	-2.8	-3.0	-3.3	-3.5	-3.2	-3.5	-4.0	-4.1	-3.7	-3.7	-3.6	-3.0	-2.7	-2.3	-2.0	-2.1	-2.8	-1.7	-2.6	-3.1

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



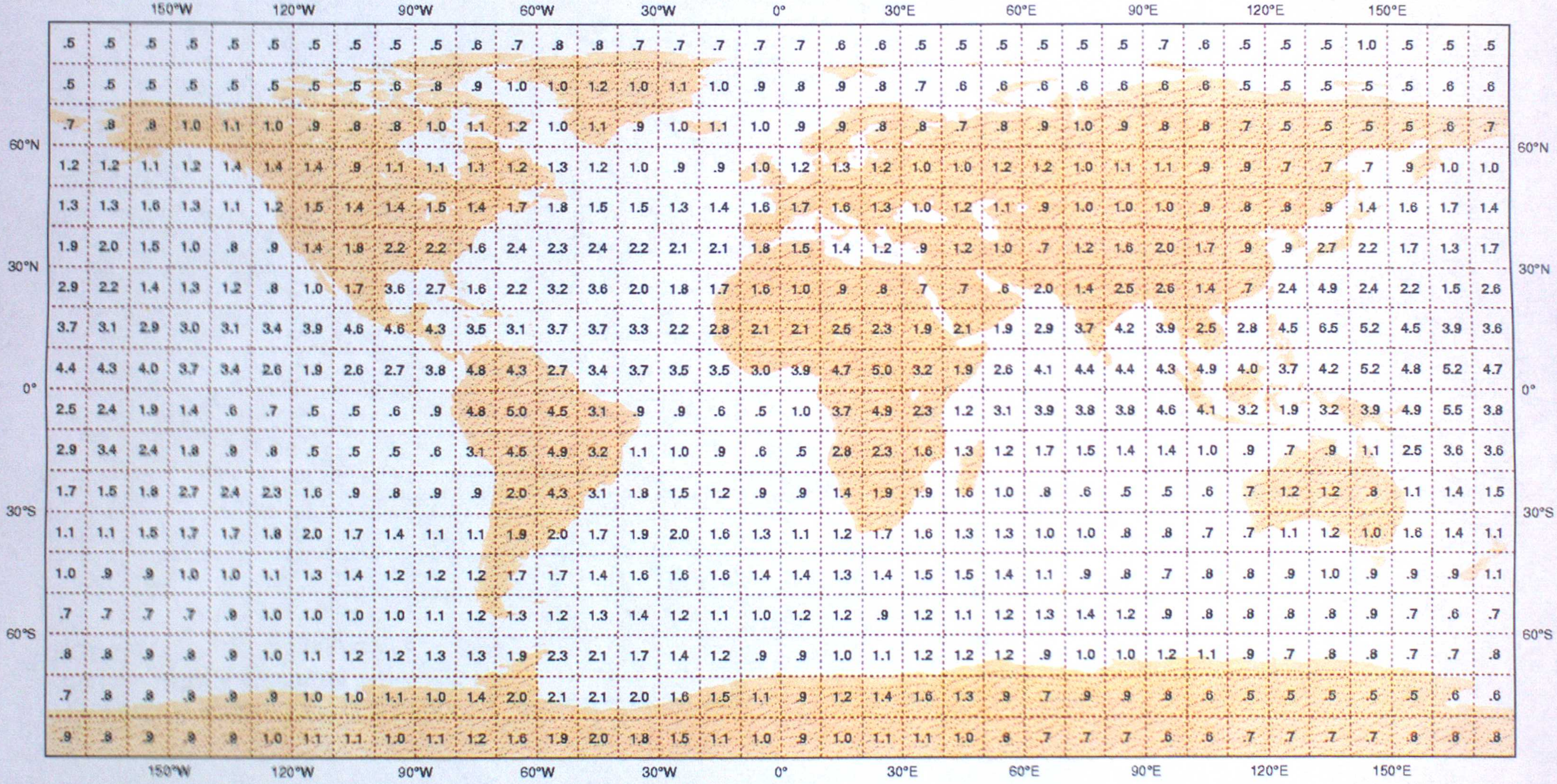
2.1	2.0	1.8	1.9	1.8	1.7	1.6	1.5	1.6	2.4	2.9	3.3	3.7	3.6	3.8	3.8	3.6	3.5	3.3	2.9	2.6	2.2	2.2	2.5	2.4	2.4	2.4	3.3	2.7	2.0	1.9	1.9	2.0	2.2	2.2	2.1
2.7	2.8	2.4	2.3	1.8	1.8	2.0	2.0	3.4	4.7	4.9	5.1	5.3	5.3	4.1	5.3	4.9	4.4	4.3	4.6	4.3	4.1	3.6	3.5	3.4	3.1	3.3	3.5	3.5	2.7	2.2	2.1	2.4	2.7	2.9	2.8
4.4	4.6	4.7	5.7	5.7	5.2	4.4	3.7	4.4	5.6	5.4	5.9	5.4	5.5	4.8	5.8	6.2	5.5	5.2	4.6	4.5	4.3	4.1	4.2	5.0	5.2	4.7	4.7	4.3	3.5	2.8	2.3	2.3	2.9	4.1	5.0
6.7	6.0	6.4	6.5	7.2	6.9	6.4	4.7	5.4	5.7	5.5	5.5	5.9	5.6	5.1	5.2	5.5	6.0	6.0	6.0	5.6	5.1	5.2	5.9	5.9	5.5	5.7	5.9	5.0	5.1	4.4	4.6	5.1	5.0	5.5	6.4
6.2	6.3	6.8	5.8	5.2	6.0	7.2	6.8	6.5	6.6	6.4	7.3	7.3	6.4	6.5	6.5	6.6	7.0	7.4	6.6	5.7	4.9	5.7	5.0	4.9	6.1	6.0	5.6	5.1	4.8	4.4	4.7	6.5	6.5	6.9	6.7
7.2	7.3	5.6	4.0	3.3	4.2	6.4	7.7	8.5	8.2	6.8	9.2	8.5	8.2	8.1	8.4	7.7	7.2	6.8	5.8	4.7	4.5	5.5	4.7	4.0	6.6	8.2	8.1	6.9	4.5	4.1	8.7	7.7	5.7	4.6	6.7
9.2	6.6	5.9	4.9	4.3	2.9	3.4	5.9	10.4	7.7	5.5	7.7	10.3	10.5	6.7	6.9	5.9	5.5	4.5	4.1	3.6	3.4	3.5	2.5	5.6	4.6	7.4	8.1	4.7	2.6	6.6	12.3	7.7	6.6	4.7	8.3
10.3	9.0	8.5	8.7	9.2	9.7	11.3	12.8	12.6	12.0	10.2	9.4	10.9	10.4	9.5	6.8	8.5	6.7	6.5	7.3	6.7	6.4	5.9	5.7	8.1	10.2	11.7	10.6	7.3	7.9	12.1	16.3	13.4	12.2	11.0	10.4
12.5	12.0	11.8	10.8	9.8	7.3	5.7	7.8	8.1	10.9	13.5	12.2	7.9	9.9	11.1	11.0	10.9	9.2	11.6	13.4	13.8	9.2	5.9	7.5	11.6	12.0	12.0	11.9	13.4	11.8	10.0	11.1	13.7	12.8	13.5	12.9
7.4	6.9	5.5	3.7	1.8	1.5	1.3	1.2	1.5	3.2	13.8	13.6	13.0	9.2	3.0	2.5	2.0	1.3	3.3	11.0	13.8	6.4	3.9	9.0	11.2	10.8	10.9	12.7	11.2	8.5	5.2	9.2	10.7	13.1	14.5	10.4
8.9	10.0	7.7	5.7	3.1	2.8	1.3	1.4	1.7	1.7	8.8	12.9	14.1	9.4	3.9	3.7	3.2	2.2	1.9	8.5	7.3	5.1	4.3	3.6	5.2	4.6	4.5	3.6	2.6	2.3	3.1	3.2	3.2	7.1	10.3	10.3
6.3	5.8	7.0	9.5	9.3	9.0	6.3	3.6	3.3	2.8	2.7	7.1	14.2	10.1	7.1	6.6	4.9	3.3	4.1	5.9	7.4	7.1	6.0	3.7	2.8	1.9	1.8	2.1	2.6	3.3	5.5	5.3	4.0	5.0	5.0	6.0
5.5	5.6	7.0	7.8	7.8	8.5	8.3	6.9	6.2	4.9	5.6	8.9	9.1	8.0	8.2	8.5	7.1	5.9	5.1	6.1	7.2	6.8	5.7	6.1	5.2	4.7	4.1	4.2	3.9	3.9	5.0	5.6	5.1	7.5	7.0	5.8
5.8	5.2	5.6	6.0	5.7	6.0	6.5	6.9	6.3	6.5	6.9	8.3	7.5	6.6	7.4	7.1	7.2	6.6	6.6	5.9	6.2	6.9	7.3	6.6	5.6	5.0	4.7	4.8	5.2	5.6	5.8	5.8	5.2	5.3	5.3	6.2
4.5	4.4	4.9	5.0	5.1	5.7	5.6	5.6	5.7	5.8	6.5	7.0	6.2	6.3	6.8	5.9	5.8	5.8	5.7	5.6	5.1	5.5	5.9	6.1	6.1	6.4	5.5	4.6	4.7	4.9	5.2	5.2	5.3	4.4	4.0	4.3
4.6	4.6	5.0	4.5	5.0	5.4	5.8	6.0	6.2	6.0	6.5	8.7	9.5	8.2	6.7	5.9	5.3	4.4	4.8	5.0	5.3	5.7	6.0	5.9	5.1	5.3	5.2	5.7	5.4	4.9	4.7	4.8	4.5	4.2	4.7	4.6
3.7	3.8	4.2	4.7	5.5	5.8	6.0	5.6	6.4	5.8	7.3	8.9	8.6	8.2	7.7	6.4	6.7	4.7	4.4	5.3	6.2	6.6	5.2	3.2	3.2	4.3	3.4	3.0	2.2	1.8	1.8	1.8	2.0	2.4	3.9	3.4
3.8	3.9	4.2	4.1	4.6	5.0	5.6	5.1	4.4	4.8	5.4	6.9	7.5	7.8	6.7	5.5	3.8	2.9	2.6	3.1	3.4	3.0	2.7	2.7	2.4	2.5	2.4	2.0	1.9	2.1	2.3	2.6	2.9	4.1	4.1	3.7

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



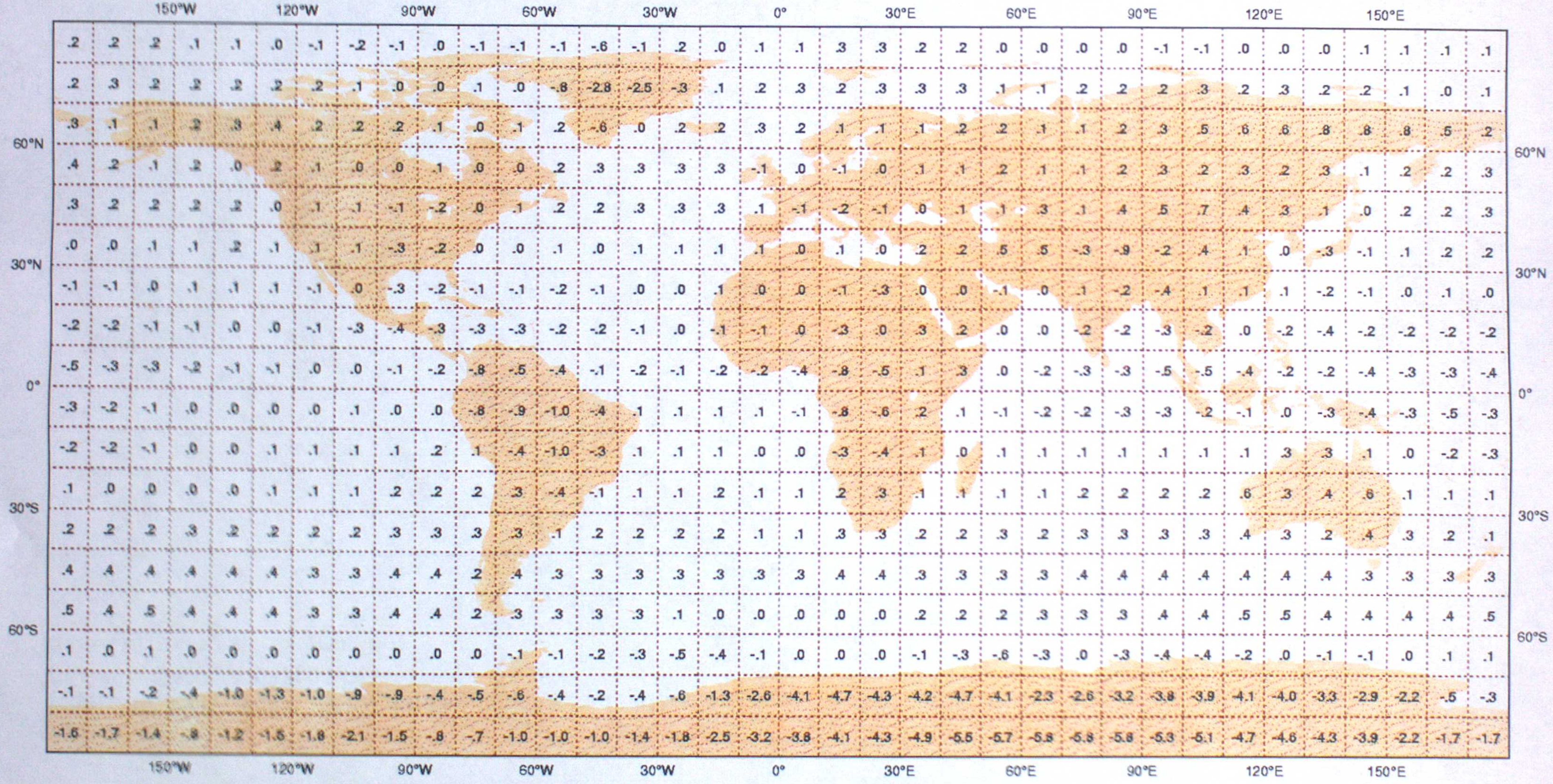
.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.0	.0	.1	.1	.2	.2	.2	.2	.1	-.1	-.2	-.2	-.3	-.4	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	-.1	.0
-.2	-.2	-.1	-.3	-.3	-.2	-.1	.1	.0	-.2	-.2	-.3	-.2	-.3	-.1	-.2	-.3	-.2	-.2	-.1	.0	.0	-.1	-.1	-.2	-.3	-.3	-.3	-.2	-.1	.0	.0	.0	.0	-.1	-.2
-.4	-.3	-.4	-.5	-.6	-.6	-.5	-.1	-.3	-.4	-.4	-.4	-.5	-.3	-.1	-.1	-.2	-.3	-.4	-.5	-.5	-.2	-.3	-.4	-.5	-.3	-.5	-.5	-.4	-.4	-.2	-.2	-.2	-.1	-.2	-.3
-.4	-.4	-.6	-.4	-.2	-.3	-.7	-.5	-.5	-.6	-.5	-.6	-.7	-.4	-.4	-.4	-.5	-.7	-.9	-.9	-.5	-.2	-.3	-.1	.0	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.5	-.6	-.7	-.5
-.5	-.7	-.2	.1	.1	.0	-.3	-.6	-.9	-.7	-.3	-.9	-.9	-.9	-.8	-.9	-.8	-.7	-.6	-.3	.0	.1	-.1	.1	.2	-.2	-.5	-.9	-.6	.0	.0	-1.0	-.9	-.4	-.2	-.4
-.9	-.3	-.1	.0	.0	.2	.1	-.2	-1.0	-.6	-.1	-.5	-1.8	-1.9	-.6	-.5	-.4	-.3	.1	.2	.3	.3	.3	.4	.0	.1	-.3	-.7	-.1	.3	-.2	-2.3	-.5	-.4	.0	-.6
-2.0	-1.2	-1.0	-1.0	-1.1	-1.0	-1.6	-2.4	-2.5	-2.1	-1.4	-1.4	-2.0	-1.9	-1.5	-.6	-1.0	-.4	-.5	-.5	-.4	-.1	-.1	-.1	-.7	-1.8	-1.9	-1.7	-.6	-.7	-2.5	-5.2	-2.7	-2.4	-1.9	-1.6
-2.7	-2.3	-1.9	-1.5	-.9	-.4	-.1	-.7	-.8	-1.7	-3.6	-3.0	-1.1	-1.2	-1.6	-1.6	-1.2	-.7	-1.9	-2.6	-3.1	-1.1	-.1	-.5	-1.9	-2.5	-2.5	-3.1	-3.5	-2.7	-2.2	-2.7	-3.3	-2.9	-3.1	-2.7
-.9	-.5	-.2	.1	.4	.4	.4	.5	.4	.1	-3.3	-3.9	-2.8	-1.0	.2	.3	.4	.5	.2	-1.8	-3.4	-.6	.2	-.8	-1.7	-1.9	-2.3	-2.9	-2.4	-1.3	-.5	-1.6	-2.1	-3.5	-4.4	-2.1
-.9	-1.3	-.7	-.1	.3	.4	.5	.4	.4	.3	-.9	-2.4	-3.3	-1.3	.1	.1	.2	.3	.3	-.6	-.7	-.3	.1	.1	-.2	-.1	.0	.1	.2	.3	.4	.3	.2	-.7	-1.8	-1.6
-.4	-.3	-.6	-1.3	-1.3	-1.1	-.4	.1	.1	.1	.1	-.3	-1.9	-1.7	-.5	-.3	-.2	.1	.1	-.1	-.3	-.4	-.2	.0	.2	.3	.3	.3	.2	.2	.0	-.1	.1	.0	-.1	-.2
-.3	-.2	-.5	-.7	-.7	-1.0	-1.1	-.8	-.5	-.2	-.3	-.7	-.7	-.6	-.8	-1.1	-.7	-.5	-.3	-.3	-.6	-.5	-.2	-.3	-.1	-.1	.0	-.1	.0	.0	-.2	-.3	-.2	-.6	-.5	-.3
-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.5	-.4	-.4	-.5	-.7	-.6	-.4	-.6	-.7	-.7	-.7	-.6	-.5	-.5	-.6	-.6	-.5	-.4	-.2	-.1	-.1	-.1	-.2	-.3	-.3	-.2	-.3	-.3	-.4
-.1	.0	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.5	-.4	-.4	-.4	-.4	-.4	-.3	-.4	-.4	-.4	-.4	-.5	-.4	-.2	-.2	-.2	-.2	-.2	-.3	-.2	-.1	-.1
-.2	-.2	-.3	-.3	-.4	-.4	-.4	-.5	-.5	-.5	-.6	-.9	-1.2	-1.0	-.8	-.7	-.6	-.3	-.3	-.3	-.3	-.4	-.5	-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.2	-.2	-.3	-.2
-.3	-.3	-.3	-.3	-.4	-.6	-.6	-.5	-.6	-.5	-.8	-1.2	-1.2	-1.1	-1.0	-.9	-.7	-.4	-.3	-.4	-.5	-.6	-.5	-.2	-.1	-.2	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.3
-.3	-.3	-.3	-.3	-.4	-.4	-.6	-.6	-.5	-.5	-.5	-.7	-.8	-.8	-.7	-.6	-.4	-.4	-.3	-.4	-.5	-.5	-.6	-.5	-.5	-.5	-.4	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.3

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



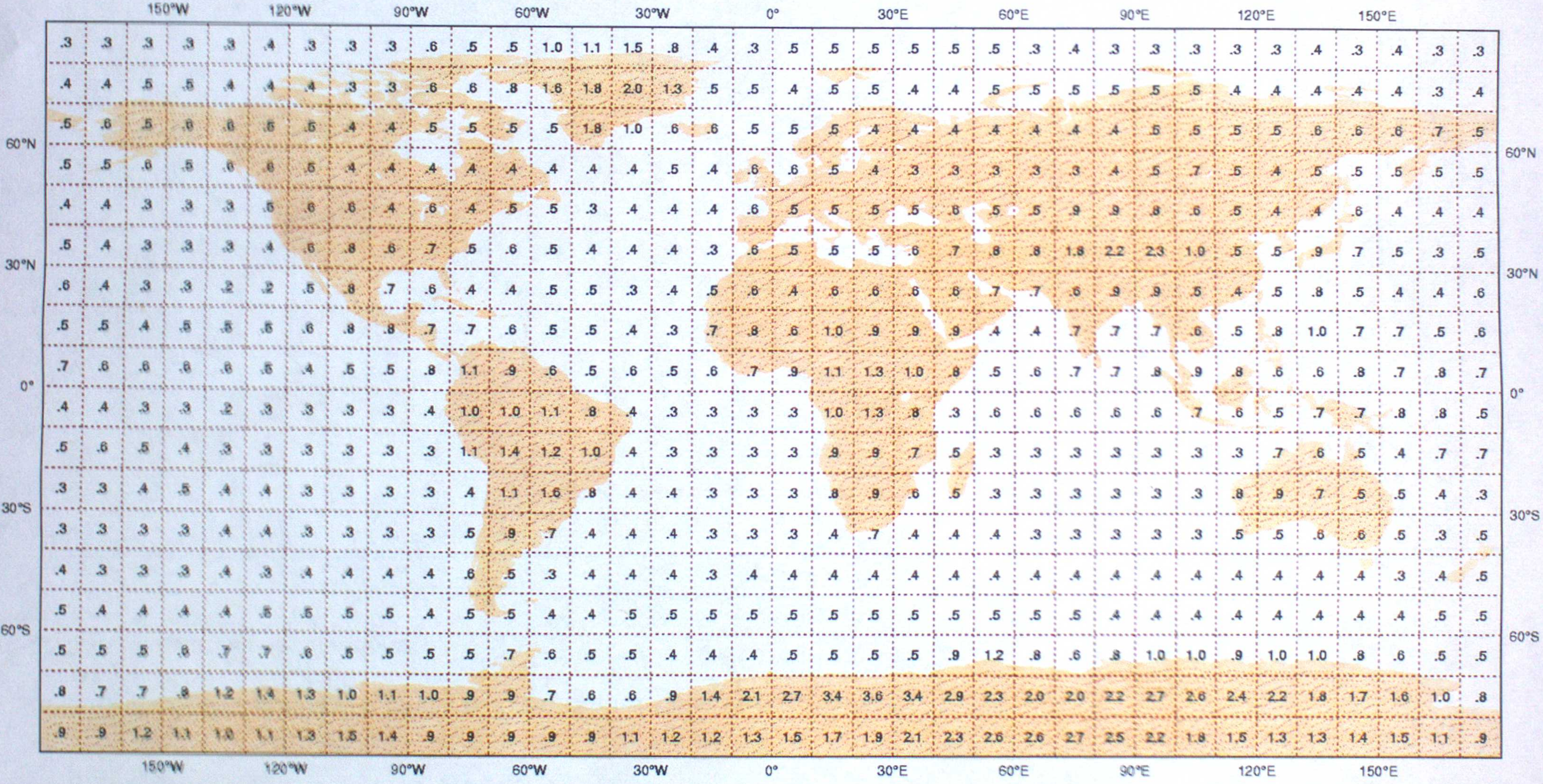
.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.7	.8	.8	.7	.7	.7	.7	.7	.6	.6	.5	.5	.5	.5	.5	.5	.7	.6	.5	.5	.5	1.0	.5	.5	.5
.5	.5	.5	.5	.5	.5	.5	.5	.6	.8	.9	1.0	1.0	1.2	1.0	1.1	1.0	.9	.8	.9	.8	.7	.6	.6	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.6	.6
.7	.8	.8	1.0	1.1	1.0	.9	.8	.8	1.0	1.1	1.2	1.0	1.1	.9	1.0	1.1	1.0	.9	.9	.8	.8	.7	.8	.9	1.0	.9	.8	.8	.7	.5	.5	.5	.5	.6	.7
1.2	1.2	1.1	1.2	1.4	1.4	1.4	.9	1.1	1.1	1.1	1.2	1.3	1.2	1.0	.9	.9	1.0	1.2	1.3	1.2	1.0	1.0	1.2	1.2	1.0	1.1	1.1	.9	.9	.7	.7	.7	.9	1.0	1.0
1.3	1.3	1.6	1.3	1.1	1.2	1.5	1.4	1.4	1.5	1.4	1.7	1.8	1.5	1.5	1.3	1.4	1.6	1.7	1.6	1.3	1.0	1.2	1.1	.9	1.0	1.0	1.0	.9	.8	.8	.9	1.4	1.6	1.7	1.4
1.9	2.0	1.5	1.0	.8	.9	1.4	1.8	2.2	2.2	1.6	2.4	2.3	2.4	2.2	2.1	2.1	1.8	1.5	1.4	1.2	.9	1.2	1.0	.7	1.2	1.6	2.0	1.7	.9	.9	2.7	2.2	1.7	1.3	1.7
2.9	2.2	1.4	1.3	1.2	.8	1.0	1.7	3.6	2.7	1.6	2.2	3.2	3.6	2.0	1.8	1.7	1.6	1.0	.9	.8	.7	.7	.6	2.0	1.4	2.5	2.6	1.4	.7	2.4	4.9	2.4	2.2	1.5	2.6
3.7	3.1	2.9	3.0	3.1	3.4	3.9	4.6	4.6	4.3	3.5	3.1	3.7	3.7	3.3	2.2	2.8	2.1	2.1	2.5	2.3	1.9	2.1	1.9	2.9	3.7	4.2	3.9	2.5	2.8	4.5	6.5	5.2	4.5	3.9	3.6
4.4	4.3	4.0	3.7	3.4	2.6	1.9	2.6	2.7	3.8	4.8	4.3	2.7	3.4	3.7	3.5	3.5	3.0	3.9	4.7	5.0	3.2	1.9	2.6	4.1	4.4	4.4	4.3	4.9	4.0	3.7	4.2	5.2	4.8	5.2	4.7
2.5	2.4	1.9	1.4	.6	.7	.5	.5	.6	.9	4.8	5.0	4.5	3.1	.9	.9	.6	.5	1.0	3.7	4.9	2.3	1.2	3.1	3.9	3.8	3.8	4.6	4.1	3.2	1.9	3.2	3.9	4.9	5.5	3.8
2.9	3.4	2.4	1.8	.9	.8	.5	.5	.5	.6	3.1	4.5	4.9	3.2	1.1	1.0	.9	.6	.5	2.8	2.3	1.6	1.3	1.2	1.7	1.5	1.4	1.4	1.0	.9	.7	.9	1.1	2.5	3.6	3.6
1.7	1.5	1.8	2.7	2.4	2.3	1.6	.9	.8	.9	.9	2.0	4.3	3.1	1.8	1.5	1.2	.9	.9	1.4	1.9	1.9	1.6	1.0	.8	.6	.5	.5	.6	.7	1.2	1.2	.8	1.1	1.4	1.5
1.1	1.1	1.5	1.7	1.7	1.8	2.0	1.7	1.4	1.1	1.1	1.9	2.0	1.7	1.9	2.0	1.6	1.3	1.1	1.2	1.7	1.6	1.3	1.3	1.0	1.0	.8	.8	.7	.7	1.1	1.2	1.0	1.6	1.4	1.1
1.0	.9	.9	1.0	1.0	1.1	1.3	1.4	1.2	1.2	1.2	1.7	1.7	1.4	1.6	1.6	1.6	1.4	1.4	1.3	1.4	1.5	1.5	1.4	1.1	.9	.8	.7	.8	.8	.9	1.0	.9	.9	.9	1.1
.7	.7	.7	.7	.9	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.2	1.3	1.4	1.2	1.1	1.0	1.2	1.2	.9	1.2	1.1	1.2	1.3	1.4	1.2	.9	.8	.8	.8	.8	.9	.7	.6	.7
.8	.8	.9	.8	.9	1.0	1.1	1.2	1.2	1.3	1.3	1.9	2.3	2.1	1.7	1.4	1.2	.9	.9	1.0	1.1	1.2	1.2	1.2	.9	1.0	1.0	1.2	1.1	.9	.7	.8	.8	.7	.7	.8
.7	.8	.8	.8	.9	.9	1.0	1.0	1.1	1.0	1.4	2.0	2.1	2.1	2.0	1.6	1.5	1.1	.9	1.2	1.4	1.6	1.3	.9	.7	.9	.9	.8	.6	.5	.5	.5	.5	.5	.6	.6
.9	.8	.9	.9	.9	1.0	1.1	1.1	1.0	1.1	1.2	1.6	1.9	2.0	1.8	1.5	1.1	1.0	.9	1.0	1.1	1.1	1.0	.8	.7	.7	.7	.6	.6	.7	.7	.7	.7	.8	.8	.8

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



.2	.2	.2	.1	.1	.0	-.1	-.2	-.1	.0	-.1	-.1	-.1	-.6	-.1	.2	.0	.1	.1	.3	.3	.2	.2	.0	.0	.0	.0	-.1	-.1	.0	.0	.0	.1	.1	.1	.1
.2	.3	.2	.2	.2	.2	.2	.1	.0	.0	.1	.0	-.8	-2.8	-2.5	-.3	.1	.2	.3	.2	.3	.3	.3	.1	.1	.2	.2	.2	.3	.2	.3	.2	.2	.1	.0	.1
.3	.1	.1	.2	.3	.4	.2	.2	.2	.1	.0	.1	.2	-.6	.0	.2	.2	.3	.2	.1	.1	.1	.2	.2	.1	.1	.2	.3	.5	.6	.6	.8	.8	.8	.5	.2
.4	.2	.1	.2	.0	.2	.1	.0	.0	.1	.0	.0	.2	.3	.3	.3	.3	-.1	.0	-.1	.0	.1	.1	.2	.1	.1	.2	.3	.2	.3	.2	.3	.1	.2	.2	.3
.3	.2	.2	.2	.2	.0	.1	.1	-.1	-.2	.0	.1	.2	.2	.3	.3	.3	.1	-.1	-.2	-.1	.0	.1	.1	.3	.1	.4	.5	.7	.4	.3	.1	.0	.2	.2	.3
.0	.0	.1	.1	.2	.1	.1	.1	-.3	-.2	.0	.0	.1	.0	.1	.1	.1	.1	.0	.1	.0	.2	.2	.5	.5	-.3	-.9	-.2	.4	.1	.0	-.3	-.1	.1	.2	.2
-.1	-.1	.0	.1	.1	.1	-.1	.0	-.3	-.2	-.1	-.1	-.2	-.1	.0	.0	.1	.0	.0	-.1	-.3	.0	.0	-.1	.0	.1	-.2	-.4	.1	.1	.1	-.2	-.1	.0	.1	.0
-.2	-.2	-.1	-.1	.0	.0	-.1	-.3	-.4	-.3	-.3	-.3	-.2	-.2	-.1	.0	-.1	-.1	.0	-.3	.0	.3	.2	.0	.0	-.2	-.2	-.3	-.2	.0	-.2	-.4	-.2	-.2	-.2	-.2
-.5	-.3	-.3	-.2	-.1	-.1	.0	.0	-.1	-.2	-.8	-.5	-.4	-.1	-.2	-.1	-.2	-.2	-.4	-.8	-.5	.1	.3	.0	-.2	-.3	-.3	-.5	-.5	-.4	-.2	-.2	-.4	-.3	-.3	-.4
-.3	-.2	-.1	.0	.0	.0	.0	.1	.0	.0	-.8	-.9	-1.0	-.4	.1	.1	.1	.1	-.1	-.8	-.6	.2	.1	-.1	-.2	-.2	-.3	-.3	-.2	-.1	.0	-.3	-.4	-.3	-.5	-.3
-.2	-.2	-.1	.0	.0	.1	.1	.1	.1	.2	.1	-.4	-1.0	-.3	.1	.1	.1	.0	.0	-.3	-.4	.1	.0	.1	.1	.1	.1	.1	.1	.1	.3	.3	.1	.0	-.2	-.3
.1	.0	.0	.0	.0	.1	.1	.1	.2	.2	.2	.3	-.4	-.1	.1	.1	.2	.1	.1	.2	.3	.1	.1	.1	.1	.2	.2	.2	.2	.6	.3	.4	.6	.1	.1	.1
.2	.2	.2	.3	.2	.2	.2	.2	.3	.3	.3	.3	.1	.2	.2	.2	.2	.1	.1	.3	.3	.2	.2	.3	.2	.3	.3	.3	.3	.4	.3	.2	.4	.3	.2	.1
.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.2	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3
.5	.4	.5	.4	.4	.4	.3	.3	.4	.4	.2	.3	.3	.3	.3	.1	.0	.0	.0	.0	.0	.2	.2	.2	.3	.3	.3	.4	.4	.5	.5	.4	.4	.4	.4	.5
.1	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	-.1	-.1	-.2	-.3	-.5	-.4	-.1	.0	.0	.0	-.1	-.3	-.6	-.3	.0	-.3	-.4	-.4	-.2	.0	-.1	-.1	.0	.1	.1
-.1	-.1	-.2	-.4	-1.0	-1.3	-1.0	-.9	-.9	-.4	-.5	-.6	-.4	-.2	-.4	-.6	-1.3	-2.6	-4.1	-4.7	-4.3	-4.2	-4.7	-4.1	-2.3	-2.6	-3.2	-3.8	-3.9	-4.1	-4.0	-3.3	-2.9	-2.2	-.5	-.3
-1.6	-1.7	-1.4	-.8	-1.2	-1.5	-1.8	-2.1	-1.5	-.8	-.7	-1.0	-1.0	-1.0	-1.4	-1.8	-2.5	-3.2	-3.8	-4.1	-4.3	-4.9	-5.5	-5.7	-5.8	-5.8	-5.8	-5.3	-5.1	-4.7	-4.6	-4.3	-3.9	-2.2	-1.7	-1.7

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



.3	.3	.3	.3	.3	.4	.3	.3	.3	.6	.5	.5	1.0	1.1	1.5	.8	.4	.3	.5	.5	.5	.5	.5	.5	.3	.4	.3	.3	.3	.3	.3	.4	.3	.4	.3	.3
.4	.4	.5	.5	.4	.4	.4	.3	.3	.6	.6	.8	1.6	1.8	2.0	1.3	.5	.5	.4	.5	.5	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.3	.4
.5	.6	.5	.6	.6	.5	.5	.4	.4	.5	.5	.5	.5	1.8	1.0	.6	.6	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.6	.6	.6	.7	.5
.5	.5	.6	.5	.6	.6	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.6	.6	.5	.4	.3	.3	.3	.3	.3	.4	.5	.7	.5	.4	.5	.5	.5	.5	.5
.4	.4	.3	.3	.3	.5	.6	.6	.4	.6	.4	.5	.5	.3	.4	.4	.4	.6	.5	.5	.5	.5	.6	.5	.5	.9	.9	.8	.6	.5	.4	.4	.6	.4	.4	.4
.5	.4	.3	.3	.3	.4	.6	.8	.6	.7	.5	.6	.5	.4	.4	.4	.3	.6	.5	.5	.5	.6	.7	.8	.8	1.8	2.2	2.3	1.0	.5	.5	.9	.7	.5	.3	.5
.6	.4	.3	.3	.2	.2	.5	.8	.7	.6	.4	.4	.5	.5	.3	.4	.5	.6	.4	.6	.6	.6	.6	.7	.7	.6	.9	.9	.5	.4	.5	.8	.5	.4	.4	.6
.5	.5	.4	.5	.5	.5	.6	.8	.8	.7	.7	.6	.5	.5	.4	.3	.7	.8	.6	1.0	.9	.9	.9	.4	.4	.7	.7	.7	.6	.5	.8	1.0	.7	.7	.5	.6
.7	.6	.6	.6	.6	.5	.4	.5	.5	.8	1.1	.9	.6	.5	.6	.5	.6	.7	.9	1.1	1.3	1.0	.8	.5	.6	.7	.7	.8	.9	.8	.6	.6	.8	.7	.8	.7
.4	.4	.3	.3	.2	.3	.3	.3	.3	.4	1.0	1.0	1.1	.8	.4	.3	.3	.3	.3	1.0	1.3	.8	.3	.6	.6	.6	.6	.6	.7	.6	.5	.7	.7	.8	.8	.5
.5	.6	.5	.4	.3	.3	.3	.3	.3	.3	1.1	1.4	1.2	1.0	.4	.3	.3	.3	.3	.9	.9	.7	.5	.3	.3	.3	.3	.3	.3	.3	.7	.6	.5	.4	.7	.7
.3	.3	.4	.5	.4	.4	.3	.3	.3	.3	.4	1.1	1.6	.8	.4	.4	.3	.3	.3	.8	.9	.6	.5	.3	.3	.3	.3	.3	.3	.8	.9	.7	.5	.5	.4	.3
.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.5	.9	.7	.4	.4	.4	.3	.3	.3	.4	.7	.4	.4	.4	.3	.3	.3	.3	.3	.5	.5	.6	.6	.5	.3	.5
.4	.3	.3	.3	.4	.3	.4	.4	.4	.4	.6	.5	.3	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.5
.5	.4	.4	.4	.4	.5	.5	.5	.5	.4	.5	.5	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5
.5	.5	.5	.6	.7	.7	.6	.5	.5	.5	.5	.7	.6	.5	.5	.4	.4	.4	.5	.5	.5	.5	.9	1.2	.8	.6	.8	1.0	1.0	.9	1.0	1.0	.8	.6	.5	.5
.8	.7	.7	.8	1.2	1.4	1.3	1.0	1.1	1.0	.9	.9	.7	.6	.6	.9	1.4	2.1	2.7	3.4	3.6	3.4	2.9	2.3	2.0	2.0	2.2	2.7	2.6	2.4	2.2	1.8	1.7	1.6	1.0	.8
.9	.9	1.2	1.1	1.0	1.1	1.3	1.5	1.4	.9	.9	.9	.9	.9	1.1	1.2	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.6	2.6	2.7	2.5	2.2	1.8	1.5	1.3	1.3	1.4	1.5	1.1	.9

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations

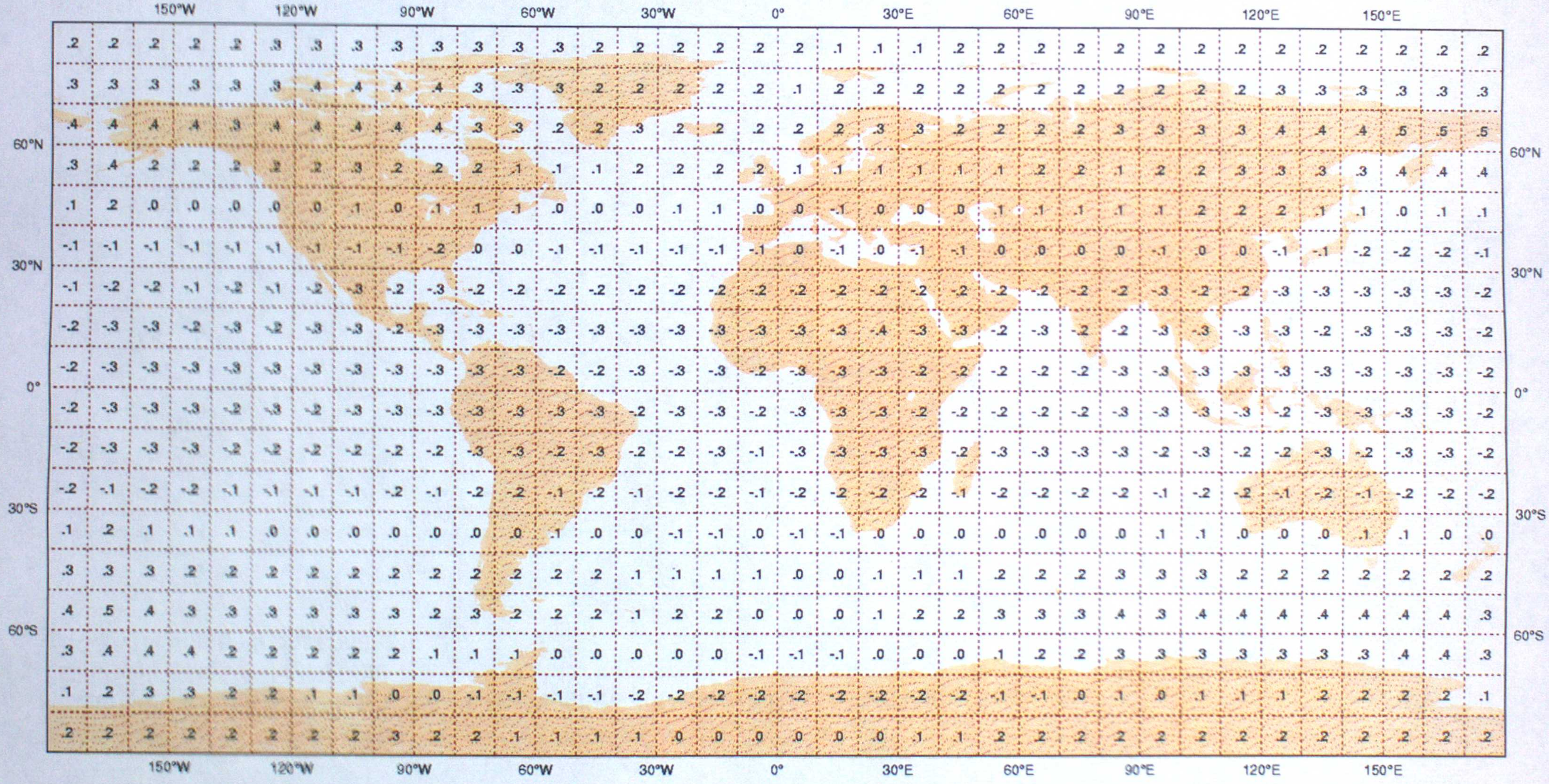

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .1 .1 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .2 .2 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .3 .3 .2 .2 .3 .2 .2 .2 .2 .2 .3 .3 .2 .2 .2 .2 .3 .3 .3 .3 .4 .4 .4 .5 .5 .5
.3 .4 .2 .2 .2 .2 .2 .3 .2 .2 .2 .1 .1 .1 .2 .2 .2 .2 .1 .1 .1 .1 .1 .1 .2 .2 .1 .2 .2 .3 .3 .3 .3 .4 .4 .4
.1 .2 .0 .0 .0 .0 .0 .1 .0 .1 .1 .1 .0 .0 .0 .1 .1 .0 .0 -.1 .0 .0 .0 .1 .1 .1 .1 .1 .2 .2 .2 .1 .1 .0 .1 .1
-.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.2 .0 .0 -.1 -.1 -.1 -.1 -.1 -.1 .0 -.1 .0 -.1 -.1 .0 .0 .0 .0 -.1 .0 .0 -.1 -.1 -.2 -.2 -.2 -.1
-.1 -.2 -.2 -.1 -.2 -.1 -.2 -.3 -.2 -.3 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.3 -.2 -.2 -.3 -.3 -.3 -.3 -.3 -.2
-.2 -.3 -.3 -.2 -.3 -.2 -.3 -.3 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.3 -.3 -.2 -.3 -.2 -.2 -.3 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.2
-.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.2 -.2 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.2 -.2 -.2 -.2 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.2
-.2 -.3 -.3 -.3 -.2 -.3 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.2 -.3 -.3 -.2 -.3 -.3 -.3 -.2 -.2 -.2 -.2 -.2 -.3 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.3 -.2
-.2 -.3 -.3 -.3 -.2 -.2 -.2 -.2 -.2 -.2 -.3 -.3 -.2 -.3 -.2 -.2 -.3 -.1 -.3 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.3 -.2 -.3 -.2 -.2 -.3 -.2 -.3 -.3 -.2
-.2 -.1 -.2 -.2 -.1 -.1 -.1 -.1 -.2 -.1 -.2 -.2 -.1 -.2 -.1 -.2 -.2 -.1 -.2 -.2 -.2 -.2 -.1 -.2 -.2 -.2 -.2 -.1 -.2 -.2 -.1 -.2 -.1 -.2 -.2 -.2
.1 .2 .1 .1 .1 .0 .0 .0 .0 .0 .0 .0 .1 .0 .0 -.1 -.1 .0 -.1 -.1 .0 .0 .0 .0 .0 .0 .0 .1 .1 .0 .0 .0 .1 .1 .0 .0
.3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .1 .1 .1 .1 .0 .0 .1 .1 .1 .2 .2 .2 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2
.4 .5 .4 .3 .3 .3 .3 .3 .3 .2 .3 .2 .2 .2 .1 .2 .2 .0 .0 .0 .1 .2 .2 .3 .3 .3 .4 .3 .4 .4 .4 .4 .4 .4 .4 .3
.3 .4 .4 .4 .2 .2 .2 .2 .2 .1 .1 .1 .0 .0 .0 .0 .0 -.1 -.1 -.1 .0 .0 .0 .1 .2 .2 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3
.1 .2 .3 .3 .2 .2 .1 .1 .0 .0 -.1 -.1 -.1 -.1 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.1 -.1 .0 .1 .0 .1 .1 .1 .2 .2 .2 .2 .1
.2 .2 .2 .2 .2 .2 .2 .2 .3 .2 .2 .1 .1 .1 .1 .0 .0 .0 .0 .0 .0 .1 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations

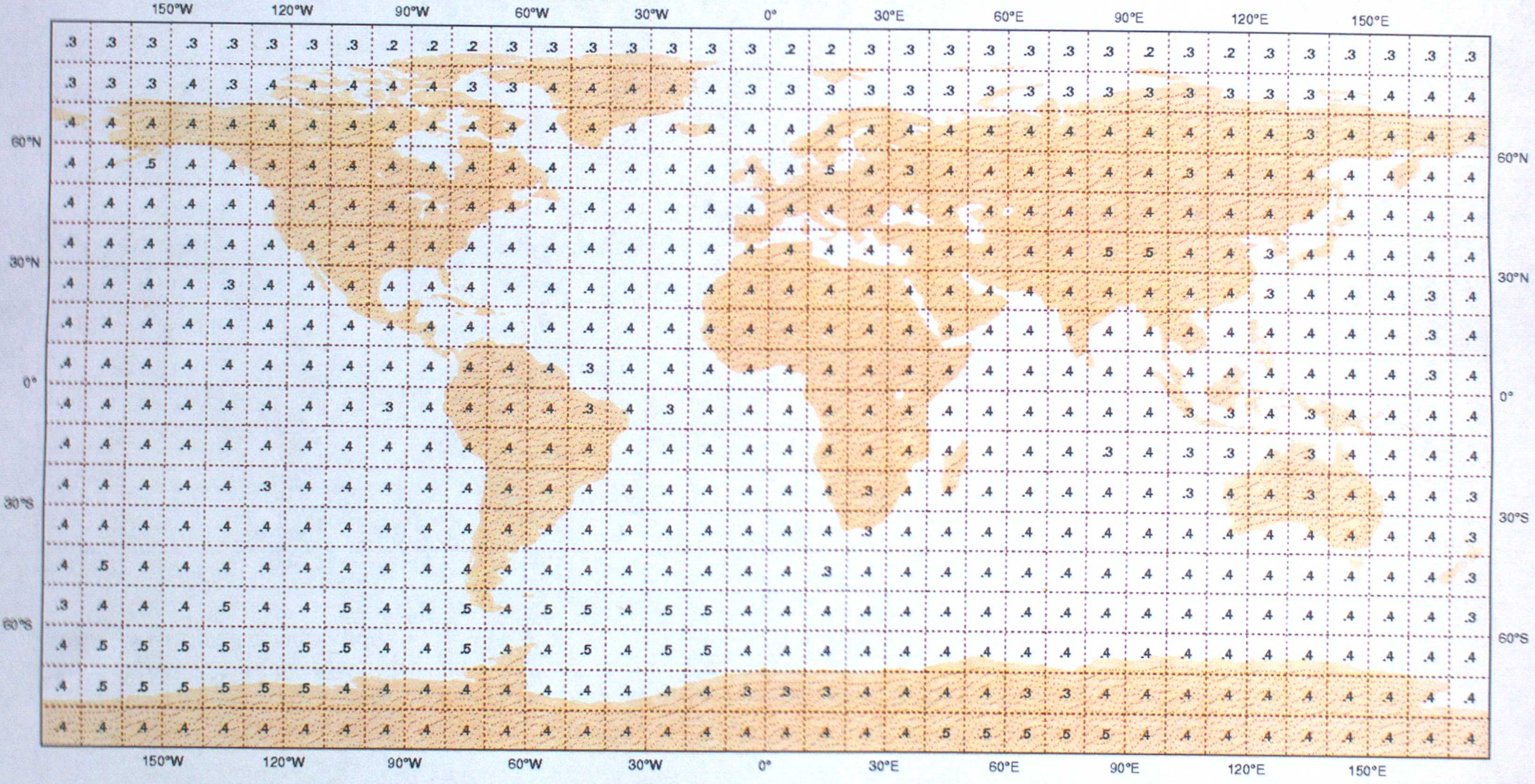
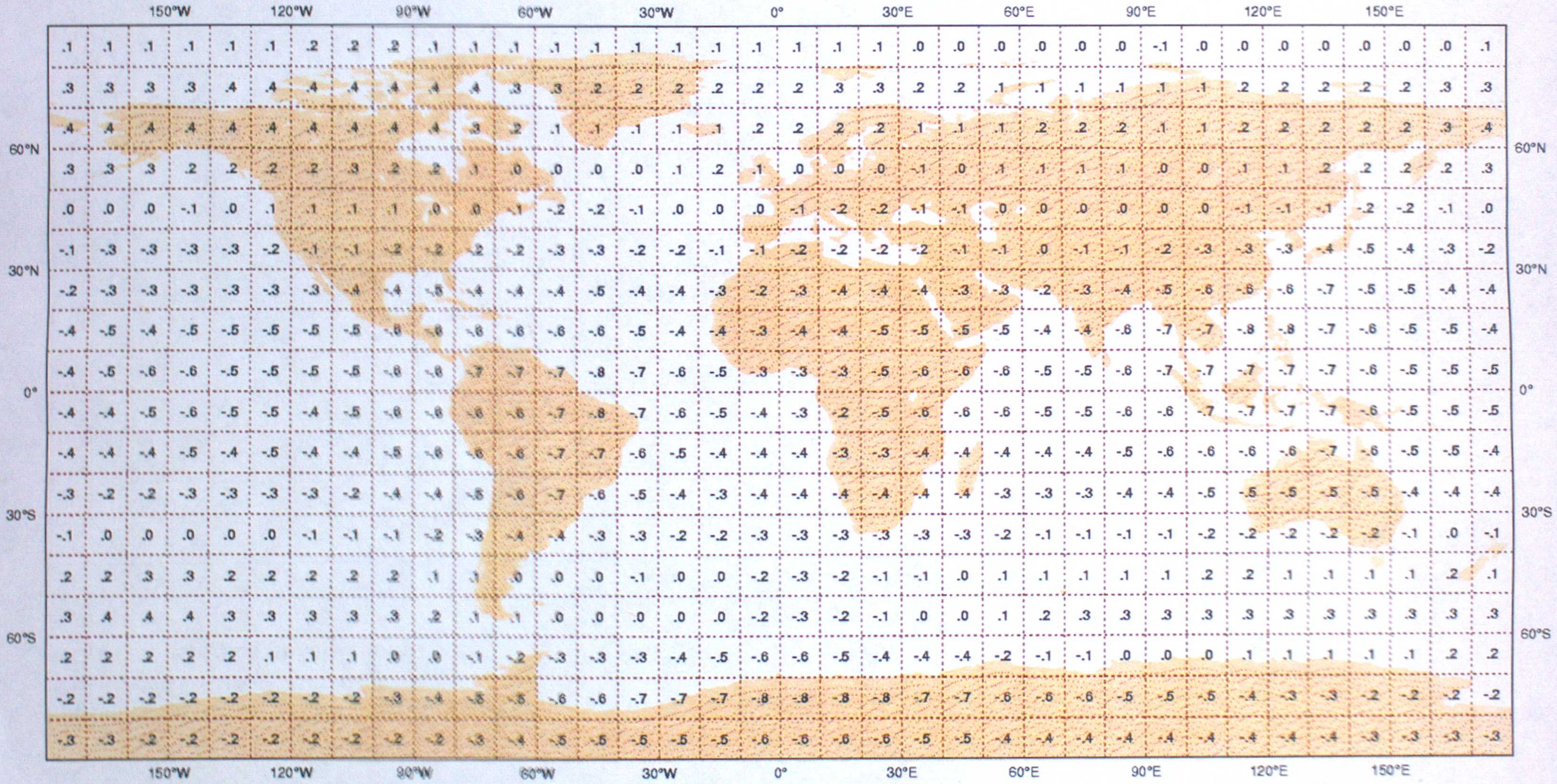

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.1	.1	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	-.1	.0	.0	.0	.0	.0	.0	.0	.1
.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.2	.2	.2	.2	.2	.2	.3	.3	.2	.2	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.3	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.2	.1	.1	.1	.1	.1	.2	.2	.2	.2	.1	.1	.1	.2	.2	.2	.1	.1	.2	.2	.2	.2	.2	.3	.4
.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.1	.0	.0	.0	.0	.1	.2	.1	.0	.0	.0	-.1	.0	.1	.1	.1	.1	.0	.0	.1	.1	.2	.2	.2	.2	.3
.0	.0	.0	-.1	.0	.1	.1	.1	.1	.0	.0	-.1	-.2	-.2	-.1	.0	.0	.0	-.1	-.2	-.2	-.1	-.1	.0	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.2	-.2	-.1	.0
-.1	-.3	-.3	-.3	-.3	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.3	-.3	-.2	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.1	-.1	.0	-.1	-.1	-.2	-.3	-.3	-.3	-.4	-.5	-.4	-.3	-.2
-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.4	-.4	-.4	-.5	-.4	-.4	-.3	-.2	-.3	-.4	-.4	-.4	-.3	-.3	-.2	-.3	-.4	-.5	-.6	-.6	-.6	-.7	-.5	-.5	-.4	-.4
-.4	-.5	-.4	-.5	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.6	-.5	-.4	-.4	-.3	-.4	-.4	-.5	-.5	-.5	-.5	-.4	-.4	-.6	-.7	-.7	-.8	-.8	-.7	-.6	-.5	-.5	-.4
-.4	-.5	-.6	-.6	-.5	-.5	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.8	-.7	-.6	-.5	-.3	-.3	-.3	-.5	-.6	-.6	-.6	-.5	-.5	-.6	-.7	-.7	-.7	-.7	-.7	-.6	-.5	-.5	-.5
-.4	-.4	-.5	-.6	-.5	-.5	-.4	-.5	-.6	-.6	-.6	-.6	-.7	-.8	-.7	-.6	-.5	-.4	-.3	-.2	-.5	-.6	-.6	-.6	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.7	-.6	-.5	-.5	-.5
-.4	-.4	-.4	-.5	-.4	-.5	-.4	-.4	-.5	-.6	-.6	-.6	-.7	-.7	-.6	-.5	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.5	-.6	-.6	-.6	-.6	-.7	-.6	-.5	-.5	-.4
-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.4	-.4	-.5	-.6	-.7	-.6	-.5	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.3	-.4	-.4	-.5	-.5	-.5	-.5	-.5	-.4	-.4	-.4
-.1	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.2	-.3	-.4	-.4	-.3	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.2	-.1	.0	-.1
.2	.2	.3	.3	.2	.2	.2	.2	.2	.1	.1	.0	.0	.0	-.1	.0	.0	-.2	-.3	-.2	-.1	-.1	.0	.1	.1	.1	.1	.1	.2	.2	.1	.1	.1	.1	.2	.1
.3	.4	.4	.4	.3	.3	.3	.3	.3	.2	.1	.1	.0	.0	.0	.0	.0	-.2	-.3	-.2	-.1	.0	.0	.1	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.2	.2	.2	.2	.2	.1	.1	.1	.0	.0	-.1	-.2	-.3	-.3	-.3	-.4	-.5	-.6	-.6	-.5	-.4	-.4	-.4	-.2	-.1	-.1	.0	.0	.0	.1	.1	.1	.1	.1	.2	.2
-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.4	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.8	-.8	-.8	-.8	-.7	-.7	-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.4	-.3	-.3	-.2	-.2	-.2	-.2
-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.4	-.5	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.5	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.3	-.3

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2004
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations

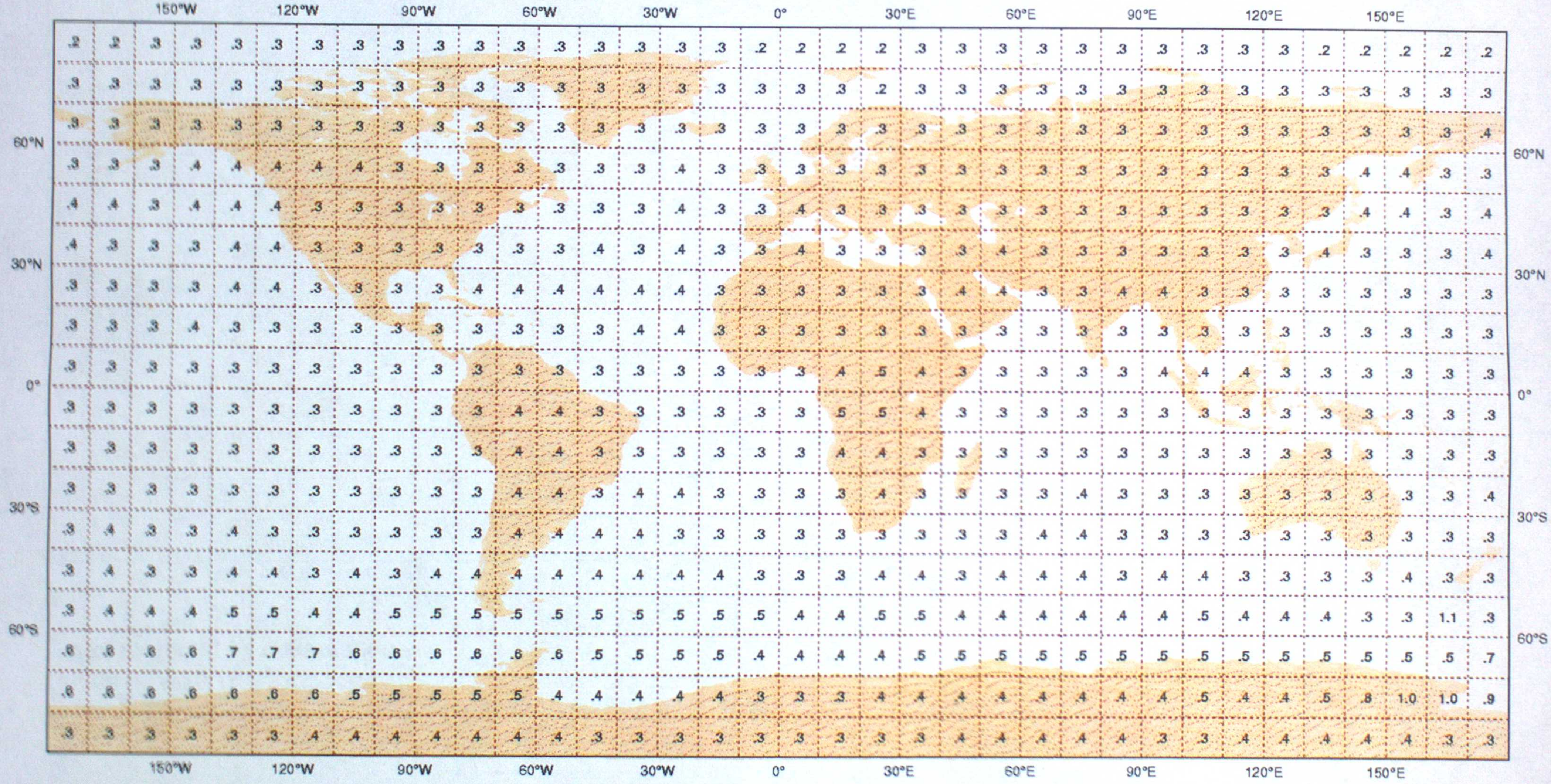

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.3 .3 .3 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3
.4 .4 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .4
.4 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .4 .3 .4 .3 .3 .4 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .4
.3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .5 .4 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .5 .5 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .4 .4 .3 .3 .3 .3 .4 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.3 .4 .3 .3 .4 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .4 .3 .3 .4 .4 .3 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .3 .4 .4 .4 .3 .4 .4 .3 .3 .3 .3 .4 .3 .3
.3 .4 .4 .4 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .3 .3 1.1 .3
.6 .6 .6 .6 .7 .7 .7 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .7
.6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .5 .8 1.0 1.0 .9
.3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .3 .3

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the wind observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13531	23.0	-36.0	P	743	0	3	0.4	0.1	0.4
13533	28.2	-68.2	P	740	0	3	0.5	0.5	0.6
13600	23.1	-47.5	P	138	0	2	0.5	1.6	1.7
13602	19.8	-45.6	P	437	0	0	0.5	0.7	0.8
41520	23.6	-62.1	P	1166	0	67	0.5	0.0	0.5
41521	19.2	-57.6	P	1073	0	68	0.6	-1.0	1.2
41539	25.1	-69.3	P	569	0	0	0.4	0.7	0.8
41540	39.1	-63.4	P	576	0	0	0.8	0.8	1.1
41541	24.7	-76.5	P	521	0	1	0.6	1.3	1.4
41542	28.5	-71.5	P	558	0	0	0.6	0.1	0.6
41543	25.8	-67.9	P	561	0	0	0.5	0.0	0.5
41544	23.6	-59.6	P	562	0	0	0.5	0.3	0.6
41545	25.7	-65.8	P	571	0	0	0.5	0.6	0.8
41546	15.7	-60.6	P	1043	0	40	0.7	1.2	1.4
41547	11.8	-52.1	P	259	7	68	4.1	3.7	5.5
41548	18.5	-52.6	P	1008	0	42	0.8	0.9	1.2
41549	18.8	-54.7	P	984	0	40	0.7	1.0	1.3
41550	15.4	-67.1	P	1122	0	44	0.7	1.3	1.5
41551	13.4	-50.2	P	947	0	40	0.8	1.1	1.3
41590	26.6	-58.5	P	522	0	0	0.5	1.6	1.7
41595	24.1	-43.8	P	527	0	1	0.5	1.3	1.4
41600	38.2	-43.5	P	775	0	27	1.1	-0.2	1.1
41601	41.2	-36.8	P	755	0	21	1.6	0.0	1.6
41631	28.8	-70.3	P	419	0	1	0.8	1.2	1.4
41646	35.3	-72.7	P	245	0	0	0.6	0.7	1.0
41655	28.1	-58.4	P	516	0	9	0.6	0.8	1.0
41663	17.3	-62.7	P	996	0	65	0.6	-0.5	0.8
41664	18.7	-49.4	P	1418	0	100	0.7	-1.7	1.8
41665	13.6	-50.2	P	1144	0	68	0.5	-0.7	0.9
41666	14.3	-52.3	P	1259	0	70	0.7	-0.8	1.0
41919	23.2	-71.7	P	29	55	100	0.5	14.0	14.1
41920	23.1	-68.5	P	231	2	3	0.5	0.3	0.6
41921	23.1	-70.9	P	245	4	7	0.8	0.4	0.9
41922	21.6	-71.4	P	262	0	3	0.5	-0.2	0.5
41923	24.5	-70.9	P	41	2	2	0.6	0.6	0.9
41924	23.3	-71.4	P	240	0	3	1.0	0.3	1.1
41925	24.6	-72.8	P	252	2	5	1.1	0.3	1.2
41926	22.1	-68.9	P	272	0	3	1.2	0.5	1.3
41927	25.0	-71.7	P	251	1	2	0.6	0.2	0.6
41928	21.3	-71.1	P	261	0	3	0.5	0.1	0.5
41929	27.4	-69.8	P	276	0	4	0.9	0.4	1.0
41930	24.8	-66.3	P	269	0	3	0.5	0.2	0.5
41931	26.1	-75.1	P	245	0	4	0.8	0.2	0.8
41932	25.8	-67.9	P	280	1	4	0.5	0.2	0.5
41933	24.1	-71.1	P	47	0	4	0.4	0.4	0.6
41934	25.2	-70.3	P	282	0	4	0.4	-0.2	0.5
41935	24.5	-68.8	P	256	0	3	0.4	0.1	0.4
41936	23.8	-71.3	P	45	0	0	0.5	0.5	0.7
41937	25.9	-72.1	P	71	0	3	0.4	0.4	0.5
41939	31.6	-76.6	P	270	1	13	1.3	-1.8	2.2
41941	31.3	-74.6	P	155	6	10	1.3	0.0	1.3
41942	29.1	-78.2	P	281	0	0	0.8	0.4	0.9
41943	27.5	-76.2	P	280	0	3	1.5	0.8	1.7
41944	31.5	-75.6	P	286	0	19	2.0	1.1	2.3
44546	48.4	-7.8	P	12	0	25	0.5	-0.7	0.8
44547	55.0	-36.3	P	1106	0	41	0.6	-0.3	0.6
44549	47.7	-45.2	P	682	1	4	0.6	0.2	0.7
44551	55.5	-14.0	P	518	0	6	1.6	1.2	2.0
44603	61.8	-4.6	P	728	0	4	0.8	0.3	0.8
44612	56.2	-22.6	P	650	0	1	0.8	0.1	0.8

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
44614	58.8	-26.1	P	474	0	8	1.5	-0.7	1.6
44617	49.4	-37.3	P	653	0	9	0.8	0.3	0.9
44623	30.0	-51.3	P	709	0	3	0.6	-0.4	0.7
44624	48.3	-33.0	P	602	0	2	1.2	0.4	1.3
44625	59.4	-40.8	P	694	0	3	0.7	-0.1	0.7
44627	45.8	-20.4	P	577	0	2	1.0	0.4	1.1
44628	34.4	-20.9	P	955	0	34	0.7	0.0	0.7
44630	28.7	-41.1	P	724	0	3	0.5	0.5	0.7
44721	53.9	-47.7	P	740	0	3	0.6	0.4	0.7
44722	48.4	-49.0	P	265	0	1	0.7	0.0	0.7
44723	57.3	-40.7	P	312	0	1	0.5	0.0	0.5
44742	44.8	-16.3	P	583	0	1	0.7	-0.1	0.7
44743	44.3	-13.5	P	533	0	2	0.7	0.2	0.7
44745	51.0	-17.8	P	1130	0	37	0.8	-0.4	0.9
44747	50.7	-7.1	P	629	0	2	0.7	-0.3	0.8
44761	53.1	-17.1	P	541	0	1	1.0	-1.1	1.5
44766	50.4	-11.2	P	597	0	2	0.9	-0.5	1.0
44773	60.1	-37.5	P	311	0	22	0.8	-0.1	0.8
44775	50.2	-45.9	P	264	0	24	1.0	-0.2	1.1
44777	24.5	-46.8	P	284	0	20	0.5	0.0	0.5
44778	29.8	-33.4	P	260	0	15	0.5	0.2	0.6
44779	50.9	-36.7	P	231	0	23	0.8	-0.3	0.8
62556	41.5	-14.3	P	733	0	3	0.6	-0.3	0.7
62557	42.7	-12.5	P	727	0	4	0.7	0.1	0.7
62558	40.2	-16.9	P	741	0	5	0.7	-0.1	0.7
62560	41.7	-15.1	P	670	0	3	0.9	0.6	1.1
62561	46.9	-23.8	P	689	0	3	1.0	-0.2	1.0
62562	50.9	-17.1	P	947	0	30	1.0	0.6	1.2
62563	53.4	-19.7	P	727	0	3	0.7	-0.2	0.8
62564	45.0	-19.3	P	730	0	3	0.7	0.0	0.7
62565	54.1	-16.1	P	714	0	2	1.0	-0.1	1.0
62566	54.3	-30.3	P	730	0	3	0.6	-0.2	0.7
62694	50.8	-15.8	P	811	0	31	1.1	0.8	1.3
62801	28.6	-29.3	P	913	0	27	0.5	0.4	0.7
64524	58.7	-44.4	P	750	0	17	0.9	0.3	0.9
64608	61.6	-50.1	P	596	0	3	0.6	-0.4	0.7
64609	62.1	-30.9	P	315	0	1	0.5	-0.2	0.5
64610	62.3	-24.7	P	62	0	0	0.5	-0.3	0.6
65597	50.3	-25.9	P	304	1	24	0.7	-0.3	0.8
65599	57.7	-16.8	P	120	0	17	0.8	-0.2	0.8
65600	58.0	-25.1	P	139	0	9	1.0	-0.4	1.1

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13600	23.1	-47.5	SPEED	129	0	100	1.3	-2.4	2.7
13602	19.8	-45.6	SPEED	433	0	100	1.9	-1.2	2.3
41539	25.1	-69.3	SPEED	550	0	100	1.6	-1.0	1.8
41540	39.1	-63.4	SPEED	552	0	100	2.6	1.2	2.8
41541	24.7	-76.5	SPEED	339	0	100	1.8	0.3	1.8
41542	28.5	-71.5	SPEED	531	0	100	1.7	0.1	1.7
41543	25.8	-67.9	SPEED	546	0	100	2.1	-0.9	2.3
41544	23.6	-59.6	SPEED	538	0	100	1.8	-0.5	1.9
41545	25.7	-65.8	SPEED	540	0	100	2.0	-0.1	2.0
41590	26.6	-58.5	SPEED	99	0	100	4.9	6.8	8.4
41595	24.1	-43.8	SPEED	456	0	100	1.3	-1.2	1.8
41646	35.3	-72.7	SPEED	243	0	100	4.2	-4.7	6.3
41919	23.2	-71.7	SPEED	27	0	100	1.1	13.1	13.1
41920	23.1	-68.5	SPEED	9	56	100	0.9	-2.1	2.3
41921	23.1	-70.9	SPEED	240	4	100	4.7	0.6	4.7
41922	21.6	-71.4	SPEED	258	0	100	2.3	-4.2	4.8
41923	24.5	-70.9	SPEED	3	0	100	0.2	-0.1	0.2
41924	23.3	-71.4	SPEED	8	38	100	4.9	-0.8	4.9
41925	24.6	-72.8	SPEED	236	2	100	3.2	-4.4	5.4
41926	22.1	-68.9	SPEED	264	2	100	2.6	0.6	2.6

41927	25.0	-71.7	SPEED	14	29	100	4.2	3.3	5.3
41928	21.3	-71.1	SPEED	3	33	100	6.9	4.4	8.2
41929	27.4	-69.8	SPEED	2	0	100	6.9	-0.5	6.9
41931	26.1	-75.1	SPEED	1	100	0			
41932	25.8	-67.9	SPEED	8	13	100	1.4	0.4	1.4
41934	25.2	-70.3	SPEED	22	5	100	2.3	2.3	3.3
41935	24.5	-68.8	SPEED	4	75	100	0.0	14.5	14.5
41936	23.8	-71.3	SPEED	2	50	100	0.0	9.3	9.3
41937	25.9	-72.1	SPEED	1	0	100	0.0	0.2	0.2
41939	31.6	-76.6	SPEED	1	100	0			
41941	31.3	-74.6	SPEED	1	100	0			
44546	48.4	-7.8	SPEED	3	0	100	0.6	3.1	3.2
62565	54.1	-16.1	SPEED	600	0	100	2.0	1.0	2.2
62566	54.3	-30.3	SPEED	648	0	100	2.0	0.2	2.0

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13600	23.1	-47.5	DIRN.	48	0	0	28.6	16.4	33.0
13602	19.8	-45.6	DIRN.	123	0	0	21.3	42.1	47.2
41539	25.1	-69.3	DIRN.	229	0	0	16.9	2.6	17.1
41540	39.1	-63.4	DIRN.	405	0	0	17.4	-3.6	17.7
41541	24.7	-76.5	DIRN.	189	0	0	19.9	-7.3	21.2
41542	28.5	-71.5	DIRN.	267	0	0	16.0	19.2	25.0
41543	25.8	-67.9	DIRN.	251	0	0	15.0	12.7	19.7
41544	23.6	-59.6	DIRN.	235	0	0	40.8	8.9	41.8
41545	25.7	-65.8	DIRN.	179	0	0	15.8	9.4	18.4
41590	26.6	-58.5	DIRN.	31	0	0	32.5	-2.6	32.6
41595	24.1	-43.8	DIRN.	143	1	0	13.5	-22.2	26.0
41646	35.3	-72.7	DIRN.	21	0	0	14.1	13.0	19.2
41919	23.2	-71.7	DIRN.	27	0	0	28.5	21.4	35.7
41920	23.1	-68.5	DIRN.	6	83	0	0.0	-46.6	46.6
41921	23.1	-70.9	DIRN.	103	10	0	12.9	36.9	39.1
41922	21.6	-71.4	DIRN.	5	20	0	65.2	-73.7	98.4
41923	24.5	-70.9	DIRN.	3	0	0	78.5	-64.5	101.6
41924	23.3	-71.4	DIRN.	4	75	0	0.0	65.9	65.9
41925	24.6	-72.8	DIRN.	9	44	0	32.4	-15.1	35.8
41926	22.1	-68.9	DIRN.	148	3	0	22.2	4.9	22.8
41927	25.0	-71.7	DIRN.	4	100	0			
41928	21.3	-71.1	DIRN.	2	50	0	0.0	-66.3	66.3
41929	27.4	-69.8	DIRN.	1	0	0	0.0	-58.6	58.6
41931	26.1	-75.1	DIRN.	1	100	0			
41932	25.8	-67.9	DIRN.	1	100	0			
41934	25.2	-70.3	DIRN.	1	100	0			
41935	24.5	-68.8	DIRN.	3	100	0			
41936	23.8	-71.3	DIRN.	2	50	0	0.0	-4.5	4.5
41937	25.9	-72.1	DIRN.	1	0	0	0.0	2.8	2.8
41939	31.6	-76.6	DIRN.	1	100	0			
41941	31.3	-74.6	DIRN.	1	100	0			
44546	48.4	-7.8	DIRN.	3	0	0	19.1	6.1	20.1
62565	54.1	-16.1	DIRN.	498	0	0	18.6	1.6	18.6
62566	54.3	-30.3	DIRN.	524	0	0	19.2	-7.6	20.7

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	754	0	9	1.5	0.0	525	1	10	0	9.3	-0.5
ACA	776	0	2	1.6	0.1	482	0	1	0	6.0	0.0
AEA	560	0	4	1.6	0.2	469	1	9	0	12.1	-1.9
AEL	167	5	23	3.2	1.6	162	0	18	0	11.5	-0.4
AFL	505	0	3	1.8	0.5	281	0	4	0	8.0	0.3
AFR	512	0	7	1.5	0.3	499	0	13	0	10.7	-0.9
AJM	230	0	3	1.4	-0.2	186	1	8	0	10.7	-1.4
AMT	65	0	15	1.7	0.6	66	0	20	0	11.0	1.0
AMX	375	2	6	1.7	0.2	304	1	8	0	11.3	-0.2
AUA	24	4	67	6.3	5.6	24	0	4	0	8.2	-2.2
AVA	30	0	3	1.5	0.8	30	0	10	0	15.3	-0.5
AZA	268	3	13	2.6	0.9	223	1	12	0	11.6	-0.6
BAL	255	0	9	1.5	-0.1	255	2	14	0	10.1	-0.9
BAW	542	1	20	1.9	-0.7	360	1	21	0	6.7	0.7
BPA	148	12	51	5.0	2.9	152	0	14	0	11.7	0.2
BWA	215	0	4	1.5	-0.4	185	1	10	0	12.1	-1.5
CFC	43	0	5	1.4	-0.1	41	0	5	0	7.8	1.9
CFG	418	1	7	1.4	0.0	356	1	9	0	9.4	-0.5
CKS	156	1	7	1.8	0.4	104	0	10	0	11.4	-0.9
CLX	268	0	1	1.4	-0.6	180	0	4	0	9.8	-0.3
COA	177	0	44	1.4	0.1	128	0	44	0	9.5	-0.2
CRL	176	0	1	1.5	0.8	163	1	16	0	16.4	-3.4
CUB	131	2	5	1.6	-0.1	111	2	11	0	12.9	0.0
DAL	795	0	7	1.6	-0.4	559	0	6	0	7.2	0.4
DCS	29	0	0	1.7	-0.9	22	0	5	0	8.7	-0.3
DHL	126	0	100	6.7	-6.4	68	0	37	0	14.9	4.6
DLH	559	1	11	1.4	0.1	541	0	12	0	7.7	0.3
DRD	107	3	6	1.5	-0.1	107	0	12	0	14.6	-4.2
EDW	66	0	2	1.2	-0.1	50	0	14	0	13.6	-2.6
EEZ	35	0	11	1.1	0.1	35	0	11	0	5.1	1.9
EIA	242	0	11	1.6	0.0	238	0	100	0	21.3	6.3
ELY	60	0	2	1.6	0.2	44	0	9	0	15.4	-2.1
ETH	25	0	4	0.9	0.0	25	0	4	0	5.7	1.4
FCA	165	1	3	1.3	0.0	138	0	7	0	11.8	-1.7
FDX	428	1	36	1.5	0.3	326	0	34	0	7.7	0.2
FIN	170	0	4	1.3	0.0	118	0	3	0	7.8	0.6
FWI	245	0	3	1.7	-0.1	244	3	12	0	12.7	-2.8
GCO	61	0	16	1.2	0.2	61	0	67	0	4.8	1.3
GRL	59	0	2	1.5	-0.2	50	0	2	0	4.2	1.2
GTI	178	8	21	1.8	0.7	163	0	16	0	9.7	0.7
HXL	160	1	2	1.1	-0.2	126	0	3	0	9.7	0.5
IBE	1546	0	6	1.5	0.4	1554	1	11	0	11.3	-1.3
ICE	1133	0	4	1.4	0.1	694	0	4	0	6.8	0.6
IWD	178	0	3	1.3	0.0	177	1	10	0	12.1	-1.5
KLM	902	0	3	1.7	0.0	610	1	5	0	9.7	-0.3
LAN	21	0	10	2.5	0.8	21	0	14	0	9.0	1.8
LDI	208	0	5	2.1	0.8	160	1	10	0	12.0	-2.7
LOT	253	0	3	1.8	-0.5	156	1	2	0	6.0	0.5
LTU	594	0	6	1.5	0.0	484	0	7	0	8.7	0.2
MON	59	2	7	1.5	-0.5	43	0	9	0	11.2	-2.5
MPD	148	1	3	1.4	0.2	130	1	7	0	8.9	-1.3
MPH	409	0	3	1.6	-0.6	285	0	6	0	8.8	-0.5
MYT	257	0	1	1.4	0.2	173	1	9	0	11.6	-1.9
NAO	49	2	16	1.3	-0.2	49	0	14	0	6.5	-0.7
NCA	39	0	3	2.2	0.8	29	0	0	0	4.9	1.1
NWA	1486	1	3	1.7	0.4	1411	0	3	0	7.4	0.2
OAE	164	1	9	1.4	-0.2	105	1	47	0	18.8	4.1
OOM	148	0	5	1.8	-1.2	100	0	9	0	8.2	0.7
PAC	107	0	3	1.4	-0.1	80	0	6	0	9.7	-0.2

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
PLM	128	0	7	2.3	1.4	116	1	11	0	12.8	-1.7
RAM	201	2	6	1.6	0.5	139	1	11	0	14.4	-2.8
RCH	179	2	100	3.6	-1.4	147	1	100	0	15.6	0.6
RRR	33	0	6	2.5	-1.1	35	0	6	0	5.8	1.2
RZO	189	1	3	1.3	-0.4	173	2	9	0	12.3	-0.8
SEU	68	1	4	2.0	0.5	59	0	5	0	12.7	-1.8
SLM	21	0	5	0.8	0.6	21	0	24	0	22.2	-4.5
TAP	239	1	3	1.3	-0.3	197	0	11	0	14.5	-2.9
TCX	62	8	15	1.8	-0.1	34	0	12	0	14.7	-1.1
TSC	301	1	4	1.5	-0.4	206	0	4	0	6.4	0.6
UAE	45	0	9	1.3	0.1	44	0	14	0	7.1	0.9
UAL	143	0	59	2.2	-1.3	102	0	60	0	8.4	0.5
UPS	983	0	51	1.8	0.2	951	0	52	0	7.9	0.2
VIR	195	0	5	1.6	0.0	134	1	7	0	9.1	0.0
VPB	37	0	11	2.3	1.5	22	0	5	0	6.6	0.0
WOA	191	2	7	1.5	0.0	170	0	7	0	7.1	1.3
XLA	64	0	2	1.6	-0.2	59	0	7	0	12.6	-1.7

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
EU	35419	0	22	1.3	0.2	35419	0	20	0	4.4	0.3

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
N	501	1	5	2.1	0.6	332	0	6	0	7.8	0.1
U	20664	0	34	1.5	0.3	20664	0	32	0	4.8	0.3

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	22.0	22.0
DBBH	12	Z	100	1	0	0.0	0.0	0.0
DBLK	12	Z	100	8	0	17.9	24.3	16.5
EASAP4	12	Z	100	1	0	0.0	5.0	5.0
EBUQ	12	Z	100	17	0	12.8	18.1	12.8
ELML7	00	Z	100	10	0	10.8	17.1	13.3
ELML7	12	Z	100	10	0	22.7	41.5	34.7
FQFL	00	Z	100	7	0	11.0	28.0	-25.7
FQFL	12	Z	100	8	0	30.1	41.2	-28.1
FQFM	00	Z	100	5	0	0.8	18.6	18.6
FQFM	12	Z	100	6	0	13.2	27.5	24.2
KHRH	00	Z	100	6	0	34.7	40.4	20.8
KHRH	12	Z	100	7	0	22.9	35.2	26.7
KRPD	00	Z	100	2	0	0.5	63.5	63.5
KRPD	12	Z	100	4	0	7.1	23.1	22.0
LDWR	00	Z	100	25	0	9.3	10.8	-5.6
LDWR	12	Z	100	26	0	7.5	8.0	-2.8
OXVH2	00	Z	100	4	0	8.7	27.4	26.0
OXVH2	12	Z	100	3	0	13.7	26.2	22.3
OXYH2	00	Z	100	2	0	2.5	26.6	26.5
OXYH2	12	Z	100	6	0	16.2	36.9	33.2
SHIP	00	Z	100	1	0	0.0	27.0	27.0
SHIP	12	Z	100	4	0	10.7	42.9	41.5
V2XM	00	Z	100	5	0	11.7	37.8	36.0
V2XM	12	Z	100	8	0	5.4	41.0	40.6
WAAH	00	Z	100	7	0	9.7	15.0	11.4
WAAH	12	Z	100	9	0	16.3	23.6	17.0
WPKD	00	Z	100	7	0	84.2	84.3	2.4
WPKD	12	Z	100	7	0	21.0	33.9	26.6
03953	00	Z	100	29	0	15.9	22.2	15.5
03953	12	Z	100	29	0	13.1	16.3	9.7
04018	00	Z	100	29	0	13.6	18.7	12.8
04018	12	Z	100	30	0	12.9	18.3	13.0
04220	00	Z	100	26	1	8.8	12.4	8.7
04220	12	Z	100	29	1	25.4	26.2	6.1
04270	00	Z	100	28	0	9.2	22.9	21.0
04270	12	Z	100	29	0	9.8	22.5	20.3
04339	00	Z	100	29	0	12.0	13.4	6.0
04339	12	Z	100	28	0	8.4	10.2	5.7
04360	00	Z	100	28	0	14.9	19.2	12.1
04360	12	Z	100	30	0	15.1	19.3	12.0
08001	00	Z	100	23	1	27.2	27.7	-5.1
08001	12	Z	100	23	2	20.0	21.6	-8.3
08508	00	Z	100	27	0	9.6	21.0	18.7
08508	12	Z	100	29	0	17.0	36.6	32.4
08522	12	Z	100	26	0	9.5	13.7	9.9
08594	12	Z	100	24	0	16.5	22.6	15.3
71600	00	Z	100	30	0	9.1	13.6	10.1
71600	12	Z	100	29	0	13.7	23.5	19.1
72201	00	Z	100	29	0	10.3	25.3	23.1
72201	12	Z	100	30	0	10.3	40.0	38.6
72402	00	Z	100	29	0	9.8	24.9	22.9
72402	12	Z	100	28	0	9.3	20.5	18.3
74494	00	Z	100	27	0	6.3	22.3	21.4
74494	12	Z	100	28	0	10.3	12.9	7.8
78016	00	Z	100	29	0	9.1	25.1	23.4
78016	12	Z	100	29	0	25.4	40.9	32.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	1	0	0.0	7.0	-7.0
DBBH	12	Z	500	1	0	0.0	7.0	7.0
DBLK	12	Z	500	8	0	3.6	3.8	-1.0
EASAP4	12	Z	500	1	0	0.0	10.0	10.0
EBUQ	12	Z	500	18	0	4.2	4.2	-0.1
ELML7	00	Z	500	10	0	5.6	6.9	-3.9
ELML7	12	Z	500	10	0	10.2	10.5	2.5
FQFL	00	Z	500	9	0	5.2	13.4	-12.3
FQFL	12	Z	500	9	1	10.1	13.0	-8.2
FQFM	00	Z	500	7	0	7.0	8.3	-4.4
FQFM	12	Z	500	6	0	12.3	12.4	-1.5
KHRH	00	Z	500	7	0	16.4	21.2	13.4
KHRH	12	Z	500	7	0	10.8	15.6	11.3
KRPD	00	Z	500	5	0	4.0	34.8	34.6
KRPD	12	Z	500	4	0	7.8	7.9	-1.0
LDWR	00	Z	500	25	0	6.8	6.9	1.3
LDWR	12	Z	500	26	0	5.3	5.4	1.4
OXVH2	00	Z	500	4	0	2.7	22.2	22.0
OXVH2	12	Z	500	3	0	5.8	18.3	17.3
OXYH2	00	Z	500	2	0	6.5	11.5	9.5
OXYH2	12	Z	500	6	0	10.8	18.3	14.8
PACDG	00	Z	500	2	0	0.5	7.5	7.5
SHIP	00	Z	500	2	0	4.0	8.1	7.0
SHIP	12	Z	500	5	0	5.8	13.5	12.2
V2XM	00	Z	500	5	0	5.7	21.8	21.0
V2XM	12	Z	500	8	0	4.9	24.7	24.3
WAAH	00	Z	500	7	0	7.5	7.7	1.9
WAAH	12	Z	500	9	0	11.1	11.3	-1.9
WPKD	00	Z	500	7	0	54.4	54.6	4.9
WPKD	12	Z	500	7	0	13.0	17.0	11.0
03953	00	Z	500	29	0	9.4	9.9	3.1
03953	12	Z	500	30	0	9.2	9.5	2.3
04018	00	Z	500	29	0	8.3	12.2	8.9
04018	12	Z	500	30	0	6.5	13.1	11.4
04220	00	Z	500	28	1	8.1	15.8	13.6
04220	12	Z	500	29	1	16.0	20.7	13.2
04270	00	Z	500	29	0	8.3	13.7	10.9
04270	12	Z	500	29	0	7.2	15.4	13.7
04339	00	Z	500	29	0	7.3	14.1	12.1
04339	12	Z	500	29	0	10.3	15.8	11.9
04360	00	Z	500	28	1	9.5	13.3	9.3
04360	12	Z	500	30	0	8.8	16.0	13.3
08001	00	Z	500	24	1	21.2	23.9	-11.0
08001	12	Z	500	23	2	10.8	14.1	-9.0
08508	00	Z	500	28	0	7.6	9.2	-5.2
08508	12	Z	500	29	0	10.1	10.2	-1.3
08522	12	Z	500	28	0	6.0	7.3	-4.2
08594	12	Z	500	26	0	5.3	5.4	-0.5
71600	00	Z	500	30	0	8.2	9.7	-5.2
71600	12	Z	500	29	0	8.3	8.5	2.1
72201	00	Z	500	29	0	4.9	5.0	-0.7
72201	12	Z	500	30	0	6.7	6.7	-0.6
72402	00	Z	500	29	0	6.4	6.4	0.1
72402	12	Z	500	28	0	8.3	8.4	-1.1
74494	00	Z	500	29	0	5.3	5.3	0.5
74494	12	Z	500	29	0	7.1	7.2	1.2
78016	00	Z	500	29	0	7.6	10.8	7.8
78016	12	Z	500	29	0	17.3	21.8	13.3

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	8.1	6.8	4.3
DBBH	12	V	100	1	0	0	3.6	-2.8	2.3
DBLK	12	V	100	8	0	0	8.1	-0.1	4.8
EASAP4	12	V	100	1	0	0	2.6	-1.5	2.1
EBUQ	12	V	100	10	0	100	5.9	0.7	2.0
ELML7	00	V	100	10	0	100	9.4	-4.7	-0.9
ELML7	12	V	100	10	0	100	8.9	-3.2	-0.8
FQFL	00	V	100	7	0	0	5.4	0.1	1.1
FQFL	12	V	100	8	0	0	5.0	-0.4	-0.9
FQFM	00	V	100	5	0	0	3.3	0.6	-0.4
FQFM	12	V	100	6	0	0	4.1	0.8	-1.2
KHRH	00	V	100	4	0	100	9.7	6.3	-0.4
KHRH	12	V	100	4	0	100	8.0	2.4	-0.6
KRPD	12	V	100	1	0	0	9.1	8.6	-3.1
LDWR	00	V	100	25	0	0	2.2	-0.2	0.4
LDWR	12	V	100	26	0	0	2.5	0.3	0.5
OXVH2	00	V	100	3	0	0	3.0	-1.3	-0.1
OXVH2	12	V	100	3	0	0	3.1	-0.8	-1.4
OXYH2	00	V	100	1	0	0	3.4	-2.3	2.5
OXYH2	12	V	100	2	0	0	8.5	4.9	4.0
SHIP	00	V	100	1	0	0	6.6	-5.6	3.4
SHIP	12	V	100	4	0	0	3.8	1.0	-2.7
V2XM	00	V	100	5	0	100	2.6	-1.3	1.1
V2XM	12	V	100	8	0	100	2.5	0.0	-0.4
WAAH	00	V	100	4	0	100	9.8	0.6	-1.9
WAAH	12	V	100	6	0	100	9.6	-4.8	-1.5
WPKD	00	V	100	4	0	0	3.2	-2.0	-1.4
WPKD	12	V	100	5	0	0	4.9	-0.3	1.0
03953	00	V	100	29	0	0	2.9	-0.3	0.9
03953	12	V	100	28	0	0	3.2	0.7	0.7
04018	00	V	100	29	0	0	2.5	-0.5	0.0
04018	12	V	100	30	0	0	3.5	-0.2	-0.3
04220	00	V	100	27	0	0	4.2	-1.4	0.3
04220	12	V	100	30	0	0	3.6	-0.4	0.0
04270	00	V	100	25	0	0	4.5	-0.9	0.4
04270	12	V	100	29	0	0	3.5	0.1	0.4
04339	00	V	100	20	0	0	6.7	0.2	-0.3
04339	12	V	100	27	0	3	5.8	1.0	-0.4
04360	00	V	100	28	0	0	4.4	-0.4	0.5
04360	12	V	100	30	0	0	3.2	0.1	-0.2
08001	00	V	100	23	0	0	6.0	1.3	1.8
08001	12	V	100	23	0	0	4.0	-0.2	-0.7
08508	00	V	100	15	0	0	3.0	-0.3	1.1
08508	12	V	100	19	0	0	3.8	0.3	-0.5
08522	12	V	100	26	0	0	4.0	-0.5	0.3
08594	12	V	100	25	0	100	7.7	-1.0	-0.9
71600	00	V	100	30	0	0	3.6	-0.7	0.4
71600	12	V	100	29	0	0	3.3	-0.3	0.3
72201	00	V	100	28	0	0	3.2	1.3	0.1
72201	12	V	100	30	0	0	4.0	1.1	1.0
72402	00	V	100	29	0	0	3.6	0.0	-0.2
72402	12	V	100	30	0	0	4.0	0.9	0.5
74494	00	V	100	27	0	100	2.7	-1.4	0.4
74494	12	V	100	28	0	100	2.6	0.1	0.7
78016	00	V	100	29	0	0	4.9	-0.2	0.3
78016	12	V	100	29	0	0	4.9	1.0	1.7

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: Oct 2004

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	1	0	0	3.1	-3.1	0.1
DBBH	12	V	500	1	0	0	5.2	4.2	-3.1
DBLK	12	V	500	8	0	0	6.5	-1.1	4.9
EASAP4	12	V	500	1	0	0	3.8	-3.4	-1.7
EBUQ	12	V	500	11	0	100	8.1	0.1	0.3
ELML7	00	V	500	10	0	100	9.3	-3.9	-2.4
ELML7	12	V	500	10	0	100	7.2	-2.4	-1.0
FQFL	00	V	500	9	0	0	5.2	-0.3	-2.5
FQFL	12	V	500	10	0	10	6.4	1.8	0.9
FQFM	00	V	500	8	0	0	4.0	1.8	-0.9
FQFM	12	V	500	6	0	0	4.9	-3.0	0.1
KHRH	00	V	500	5	0	100	10.6	3.2	-0.3
KHRH	12	V	500	6	0	100	10.5	5.7	-1.9
KRPD	12	V	500	1	0	0	5.9	5.3	-2.5
LDWR	00	V	500	25	0	0	3.0	0.6	0.4
LDWR	12	V	500	26	0	0	3.6	-0.6	-0.6
OXVH2	00	V	500	4	0	0	3.5	1.7	-0.1
OXVH2	12	V	500	3	0	0	3.8	1.8	-0.9
OXYH2	12	V	500	1	0	0	3.3	0.4	-3.3
PACDG	00	V	500	2	0	0	4.7	1.1	-1.2
SHIP	00	V	500	2	0	0	3.6	0.8	0.4
SHIP	12	V	500	5	0	0	2.3	0.7	-0.1
V2XM	00	V	500	5	0	0	3.1	0.6	1.0
V2XM	12	V	500	8	0	0	2.4	1.1	-0.7
WAAH	00	V	500	4	0	100	7.8	-0.5	-0.2
WAAH	12	V	500	6	0	100	9.5	-2.9	0.7
WPKD	00	V	500	6	0	0	4.7	-0.8	1.2
WPKD	12	V	500	5	0	0	4.4	2.2	-1.4
03953	00	V	500	29	0	0	4.4	-0.2	0.3
03953	12	V	500	29	0	0	4.9	0.9	0.8
04018	00	V	500	29	0	0	4.2	-0.9	-0.5
04018	12	V	500	30	0	0	3.2	-0.1	-0.1
04220	00	V	500	29	0	0	3.8	-0.6	0.6
04220	12	V	500	30	0	0	3.6	-0.1	0.5
04270	00	V	500	28	0	0	4.0	-0.9	0.1
04270	12	V	500	29	0	0	4.1	-0.9	-0.4
04339	00	V	500	24	0	0	6.4	0.2	-0.9
04339	12	V	500	28	0	0	5.3	0.9	0.2
04360	00	V	500	29	0	0	4.3	-1.3	0.3
04360	12	V	500	30	0	0	4.5	0.7	0.4
08001	00	V	500	25	0	0	3.8	0.8	1.3
08001	12	V	500	23	0	0	3.6	-0.2	-0.9
08508	00	V	500	16	0	0	4.2	0.0	-0.5
08508	12	V	500	18	0	0	4.7	-0.4	0.7
08522	12	V	500	28	0	0	3.2	-0.6	0.1
08594	12	V	500	27	0	100	3.2	-0.5	-0.9
71600	00	V	500	30	0	0	4.2	-0.5	0.2
71600	12	V	500	29	0	0	3.5	-0.8	-0.5
72201	00	V	500	29	0	0	2.4	0.4	0.0
72201	12	V	500	30	0	0	3.0	-0.2	-0.2
72402	00	V	500	29	0	0	3.9	0.3	0.6
72402	12	V	500	30	0	0	3.2	1.1	-0.5
74494	00	V	500	29	0	0	3.7	0.2	-0.9
74494	12	V	500	28	0	0	3.4	0.0	-0.4
78016	00	V	500	29	0	0	4.7	1.0	-0.4
78016	12	V	500	29	0	0	3.3	0.6	-0.3

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45